EARLY TRAVELLERS IN THE ALPS

G. R. DE BEER

EARLY TRAVELLERS IN THE ALPS

BY THE SAME AUTHOR

GROWTH

INTRODUCTION TO THE STUDY OF GENETICS

THE COMPARATIVE ANATOMY, HISTOLOGY, AND DEVELOPMENT OF THE PITUITARY BODY

AN INTRODUCTION TO EXPERIMENTAL EMBRYOLOGY

VERTEBRATE ZOOLOGY

EMBRYOLOGY AND EVOLUTION

PLATE I.—Frontispiece, from J. J. Scheuchzer's "Itinera Alpina," Leyden, 1723.

[*Frontispiece.*

EARLY TRAVELLERS IN THE ALPS

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Any Gentleman of what Quality soever, that had a Mind to travel through Holland, Switzerland (*where he may have the best opportunity to learn* French *and all the Exercises fit for a Gentleman*) *and* Rhætia *into* Italy; *I offer myself as a faithful Guide, and promise to give such Security as shall fully answer his expectation.*

JOHN LEONHARDI, 1711.

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WILLIAM CLOWES AND SONS, LIMITED, LONDON AND BECCLES

COSTUME D'UN VOYAGEUR DANS LES ALPES

TO

MY SUMMER AND WINTER COMPANIONS

IN THE ALPS THIS VOLUME IS

AFFECTIONATELY DEDICATED

"I am resolved, most learned Avienus, that so long as God grants me life, I will each year climb some mountains, or at least one, at the season when the flowers are in bloom, in order that I may examine these, and provide noble exercise for my body at the same time as enjoyment for my soul."

CONRAD GESNER.

Libellus de lacte et operibus lactariis. 1541.

From S. Münster's "Cosmographie Universelle," Basle, 1550.

PREFACE

THIS book is based on a number of accounts of wanderings in the Central Alps, from the earliest available, that is to say the sixteenth century, until the end of the eighteenth. This latter time-limit is convenient, for not only did the military operations in the war of the Second Coalition against the French Republic (1798–9) put an effective stop to travel in the Alps, but the nineteenth century opened a new era of alpine touring.

Unless he be a beggar or a lunatic, nobody wanders about in the Alps unless he enjoys it. On the other hand, many have had to travel across the Alps whether they liked it or not, which latter alternative was most usually the case in early times. While the irksome incidents of which the early travellers complained often appear comic when judged from

the modern standpoint, this book makes no attempt to catalogue exhaustively the experiences of alpine travellers, and it is directed more towards those persons who enjoyed their journeys.

It is necessary, therefore, at the outset, to have a little classification of travellers so as to distinguish those who merely went across the Alps from those who wandered in them. In general, the following three classes of travellers can be made out.

There are those who travel through a region for the sole purpose of getting somewhere beyond it, and here belong the countless soldiers, merchants, pilgrims and scholars, itinerant craftsmen, and monarchs visiting popes, who have crossed the Alps from the time of the Romans down to the passengers in the Orient Express of the present day. This class of traveller will largely be left out of account, for he is rarely interesting, often dislikes the Alps cordially, and seldom describes his journey through them.

Then there are those who travel in order to fulfil some specific purpose in the region in question. This might be business and trade for a merchant, or a visit to the spas and baths. Apart from these objects, it is difficult to see what could have attracted people to the Alps in early days before they had learned to enjoy them for their own sake. The visitors to the baths and their descriptions of the latter are often highly entertaining.

Lastly, there are those travellers who wander

about for no purpose other than the interest and enjoyment which the region affords them. These are the scientists and tourists, and it is to them that these pages are chiefly devoted. Some if not most of them were a very distinguished set of people, and deserving of interest from other points of view besides this. They had the honour to be the pioneers not only of "tourism," but also of mountain-climbing. The lines which introduce this Preface are usually claimed as the earliest expression of the frame of mind of the mountain-climber, but they also describe the feelings of those tourists of to-day who do not stick to the beaten track, yet have the misfortune not to be cragsmen. Luckily, the Alps are the Playground of Europe no less for the tourist than for the mountain-climber.

It is doubtless common at the present day to despise tourists, principally because they are too numerous and confine themselves too rigidly to modern methods of transport. But fortunately it is still possible in the Alps to get back to the sixteenth or seventeenth centuries in matters of tourism, walking or riding from place to place in comparative solitude, and with the undoubted advantages of twentieth-century hygiene.

The following pages, therefore, will attempt to show what touring in the central Alps was like in those early days. Readers for whom associations have a value may perhaps derive a certain satisfaction from thinking of the adventures of their prede-

cessors along any route that they have themselves travelled. It is unlikely, however, that the tourists of to-day for all the perfection of their cameras, will leave to their successors anything as attractive in the way of illustrations as the wood-cuts and engravings which the early tourists have left to them, as souvenirs of their bygone holidays. So far as possible, the following accounts will be accompanied by the illustrations given by the traveller in question. The spelling of place-names has been modernised following Baedeker and Ball's Alpine Guide, or the modern name has been added in brackets in cases where the old one is retained, and by this means it is easy to follow the itineraries on the map specially prepared for this book. If larger scale maps are required, there is a convenient collection for this purpose in Baedeker's handbook.

The author is indebted to his wife for help with the map, and to his father for assistance with some notes; to the Secretary to the Swiss Legation in London for some information concerning the languages and religions of the Grisons; to Mr. F. H. Lawson for assistance in translating a passage from Poggio; to Dr. R. T. Gunther for the loan of books and a portrait of John Ray; to Dr. J. F. Fulton for the loan of a portrait of Albrecht von Haller; to Canon F. E. Brightman for drawing his attention to Unton's journey; to Messrs. Henning Oppermann of Basle for permission to reproduce a plate from their excellent facsimile

edition of Herrliberger's work; to the Bibliothèque Publique et Universitaire at Geneva for portraits of Bourrit, De Luc, and De Saussure; to the Bibliothèque Nationale in Paris for a portrait of the Duc de Rohan, and to M. Raphael Marchand for his kind help in obtaining the latter; to the Bodleian Library for permission to reproduce illustrations from certain works in the Library; to the British Museum and the National Portrait Gallery for permission to reproduce portraits; and to the Central Library of the Swiss Alpine Club for sending him books on loan from Zürich to Oxford. The author also wishes to place on record the assistance which he has found in the numerous and admirable works of the late W. A. B. Coolidge, Fellow of Magdalen College, and in the excellent work of Mr. John Grand-Carteret.

Lastly, it is a great pleasure for the author to acknowledge the help which the Publishers, Messrs. Sidgwick and Jackson, have given him in many ways, and to express his appreciation of the care and skill which they have shown in the preparation of this book.

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EARLY TRAVELLERS IN THE ALPS

CHAPTER I

POLITICAL CONDITIONS IN THE CENTRAL ALPS BETWEEN THE SIXTEENTH AND EIGHTEENTH CENTURIES

At the present day the political conditions of the Alps are relatively simple, and the restrictions which they impose on travel, few, with the regrettable exception of the Italian frontier. The chief political boundary follows the main watershed from east to west. With the exception of a few valleys on the southern slopes which are in Swiss possession, the territory south of this line is Italian. North of the watershed, the Swiss occupy the greater and the French the westernmost part of the Central Alps.

But at the time of the travels here considered, from the sixteenth to the end of the eighteenth centuries, the political subdivisions were very much more complicated than they now are, arising chiefly from the fact that neither Switzerland nor Italy in

the modern sense had come into existence, and that Savoy was an independent state.

The present southern frontier of Switzerland was already established in 1512, except that it included in the Grisons the territories of Bormio, the Valtelline, and Chiavenna, all three of which are now Italian. On the east, Switzerland abutted against Tyrol and therefore Austria, but on the south Switzerland had three neighbours. These were, from east to west: the republic of Venice, which occupied the territory of Bergamo, adjacent to the Valtelline; the duchy of Milan, including the bishopric of Como; and the duchy of Savoy, including Piedmont, Faucigny (the valley of Chamonix), and Chablais (southern shore of the lake of Geneva). Faucigny and Chablais are now French, while Piedmont is Italian.

From the middle of the sixteenth century until 1714, the duchy of Milan belonged to Spain. This fact is important, because the chief communication between the Spanish Habsburgs in the Milanese and their Austrian kinsmen in Tyrol lay through the Valtelline. In 1714, the Milanese became Austrian and gave up the Val Sesia (south of Monte Rosa) to Savoy, whose duke in the same year became king of Sicily. In 1720, he exchanged this crown for that of Sardinia, which, in recent times, was to become that of Italy. In 1743, the Val d'Ossola and the Val Anzasca (between Monte Rosa and Locarno) passed into his hands from the Milanese,

FIG. 1.—Map showing the political boundaries of Switzerland and the central Alps in the eighteenth century.

so that a traveller crossing any of the passes out of the Valais after this date found himself on Sardinian soil.

As regards Switzerland itself, it was not the federal state of twenty-two cantons which it now is. It was a federation of thirteen fairly autonomous cantons with their allies and subjects. The cantons were : Zürich, Berne, Lucerne, Uri, Schwyz, Unterwalden, Zug, Glarus (together forming the so-called eight old cantons), Fribourg, Solothurn, Basle, Schaffhausen, and Appenzell. The allies were the independent states of the Grisons, Valais, Neuchâtel, and Geneva, the Bishop of Basle, the Abbey of Engelberg, the Abbot and the town of St. Gall, the towns of Bienne and Rapperswil, and, outside Switzerland, Mulhouse in Alsace, and Rottweil on the Neckar. There were the tiny states (under the protection of certain cantons) of Gersau, Mellingen, and Haldenstein. The Bishop of Basle possessed considerable territories which now belong to Berne, and in those days Berne extended over what are now the cantons of Vaud and of Aargau. The Austrians still held the Fricktal (just east of Basle) and the enclaves of Tarasp and of Rhäzüns in the Grisons

The remainder of Switzerland was composed of subject territories or bailiwicks, ruled by one or more of the cantons. In the plain of Switzerland, a number of these were held jointly by Berne and Fribourg : Orbe, Echallens, Morat, Schwarzenberg,

and Grandson. The eight old cantons ruled Baden ; the same eight less Berne ruled Sargans, what is now canton Thurgau, and the Free Baillages ; while to these same seven cantons plus Appenzell belonged the Rheintal. Werdenberg belonged to Glarus, and this canton together with Schwyz ruled Utznach and Gaster (on the north shore of the Walensee). On the southern slopes of the Alps, the Val Leventina was the property of Uri ; Bellinzona and Val Blenio were ruled by Uri, Schwyz, and Unterwalden; Lugano, Locarno, Mendrisio, and Val Maggia belonged to all the cantons except Appenzell. Bormio, the Valtelline, and Chiavenna were the property of the Grisons.

It is obvious from all this that any journey through the Alps before the end of the eighteenth century must have entailed the passage through the territories of a large number of different states, with consequent difficulties arising from questions of customs, currencies, and religion. Each canton had its own currency and that of other cantons could not always be exchanged without difficulty. In addition, pieces of the same denomination in different cantons had a different value. So two and a half florins of Zürich were worth two and two-thirds florins of Berne, or three and three-eighths florins of the Grisons, as late as the beginning of the nineteenth century. Ebel, in his handbook (1810) mentions a remarkable financial anomaly which cannot have made matters simple. In the Grisons

the rate of change varied with the amount of the sum changed. So one batz was worth five bloutzgher, but two batz were worth *nine* bloutzgher, three batz fourteen bloutzgher, and fifteen batz seventy bloutzgher. Accountancy under conditions resembling those of the price of eggs in Looking-glass land, such as these were, cannot have been easy.

Some of the cantons and allies were of the Roman Catholic faith, others were Protestant, and some mixed. An added source of confusion must have arisen from the fact that whereas the Catholic states adopted the Gregorian calendar in 1582, the Protestant states did not accept it until 1700. In any journey through the Alps it must have been difficult to ascertain the date. This anomalous situation nearly led to serious trouble and even to civil war, for in those cases in which a bailiwick belonged to a number of cantons, some of which were Protestant and some Catholic, the latter insisted on introducing the reformed calendar into the bailiwick, to which the former were resolutely opposed.

Frontier troubles were not unknown. In 1665 Sebastian Locatelli of Bologna crossed the Simplon pass and was held up at the Milanese frontier for a passport formality for four days, during which he whiled away the time by saying Mass at Gondo and writing the libretto of an opera.

Lastly, the conditions of alpine travel during the period under discussion actually were occasionally

complicated by wars. Some of these were civil wars, nearly all of them of religious significance. Such were : the Kappel war of 1531 in which the reformer Zwingli lost his life ; the peasant risings of 1653 ; the first Villmerger war in 1656 ; and the second in 1712. As regards foreign affairs, the conquest of the Pays de Vaud, Gex, and Chablais by Berne, and of the territory of Monthey on the lake of Geneva by Valais, was accomplished in 1536. Gex and Chablais, however, were returned to Savoy in 1564. The Austrians occupied the lower Engadine and the Prätigau intermittently from 1620 until 1631, and their rights on these territories were not finally bought out by the Grisons until 1652. The Valtelline was occupied by Spanish, Papal, Austrian (*i.e.* Imperialist) and French armies between 1620 and 1635, when the Duc de Rohan's marvellous campaign and Jenatsch's equally extraordinary intrigues succeeded in restoring that territory to the Grisons. The Münstertal (east of the Ofen pass), which was alienated from the Grisons by the Bishop of Chur in 1734, was recovered by 1762. After this, the central Alps enjoyed peace until the hurricane of the French Revolution : but previously it can have been no strange thing for the inhabitants of alpine villages to see youths marching through them bearing banners with strange devices.

CHAPTER II

TRAVELLING CONDITIONS IN THE ALPS IN THE SIXTEENTH CENTURY

ALREADY in 1574, Josias Simler, of Zürich, godson of the reformer Henry Bullinger, outlined in his Commentarius de Alpibus the chief difficulties likely to be encountered in an alpine journey and indicated the best means of circumventing them. The difficulties and dangers are arranged under various headings. Concerning the narrowness of paths, some are narrow because they are cut into the side of the rock with a precipice on one side, in which case giddiness is a source of danger. Horses and cattle are often driven along such paths, and arrangements are made whereby travellers time their passage so as to avoid them. If they do meet, regulations prescribe which party shall give way to the other.

In slippery places and on ice-covered surfaces, iron shoes fitted with sharp spikes may be worn (the modern crampons), and a stick with a sharp point is also used. Peasants often slide down slopes sitting astride on trees which have been felled. Paths across snow are restricted to the beaten track.

on each side of which the snow is deep and dangerous. For crossing snow a lattice-work of cord stretched on a hoop (snow-shoes) is attached to the foot. When crossing a glacier, especially when it is covered with snow, the danger of falling into a crevasse is avoided by the members of a party tying themselves

FIG. 2.—Josias Simler, from Grand-Carteret.

on to a rope. When off the path, travellers may become swallowed up in the deep snow. Posts are erected to indicate the line of the path, but they are often placed negligently so as to force travellers to employ guides. Herds of cattle dragging planks are used to beat down the snow.

Avalanches are best avoided by making use of the knowledge of the local inhabitants as to where they are to be feared. Paper and parchment protect the chest from cold winds. Cold feet can be cured by placing them in icy water to which warm water is gradually added. The greatest protection against cold is to keep on walking, for if after a tiring ascent a traveller sits down on the snow to rest, he may fall asleep and perish of cold. It is imprudent to go along a narrow path during a storm lest a traveller be blown over the edge of the precipice by the wind. Those who often have to cross snowfields run the risk of going blind. This may be avoided by wearing a black veil or the objects known as spectacles.

This admirable collection of precepts, on which it would be difficult to improve to-day, shows that alpine travel was even in those days well developed, though not yet for purposes of pleasure. Although the maps of the time, drawn entirely by rule of thumb without any trigonometrical rectification, were crude and inaccurate to the extent of being definitely interesting to study to-day, topographical knowledge of the Alps and their passes was far advanced in the sixteenth century. In the appendix to this chapter is given the list of alpine passes definitely described by sixteenth-century authors, and it is surprisingly large. In addition, there were a number of treatises dealing with certain regions. Among these may be mentioned Simler's *Vallesiæ*

Descriptio of 1574, which gives a surprisingly good account of the geography of the Valais; Ulrich Campell's *Topographica Rætiæ Descriptio* (*circ.* 1573), which did the same for the country of the Grisons; and Thomas Schöpf's Description of the mountains of the Bernese Oberland, 1577.

As to the actual methods of travel, these showed great variety. Simler relates that when the Emperor Henry IV crossed the Alps, he and the ladies of the court were placed on bullock-skins which were drawn by means of ropes. The Spaniard Pero Tafur crossed the St. Gotthard pass in August, 1438, and he describes his method of crossing as follows: Oxen were harnessed to trees forming a trailer like "a Castilian threshing-machine." On this he sat, followed by his horse which he led by the reins. Firearms were discharged to bring down any avalanches that might be ready to fall, and so he proceeded to the hospice on the top of the pass "which lies almost in the sky," on his way to Basle. As he remarks, this method of progression has the great advantage that if an accident occurs and anything falls over the edge of the precipice, it is the oxen, and the traveller is safe.

Another method was practised when Konrad Pellican accompanied the Papal legate, Raymond von Petrandi, from Lucerne over the St. Gotthard in 1504. As Peyer relates, the party spent the night at Wassen, "in the midst of terrifying mountains," and next morning, after breakfast at Hospenthal,

they reached the hospice with great difficulty. There they rested, and the legate, who was over sixty years of age, decided that his method of descent of the pass would differ from that of his ascent. So he ordered a litter carried by eight men, supplied in two shifts by sixteen local inhabitants requisitioned for the purpose.

It was not unknown for women to make these adventurous journeys, although it raised comment. In October, 1532, Thomas Platter, the humanist, who, with his bride, had come across the Brünig, was preparing to cross the Grimsel, when a fellow-traveller said : " It cannot be that you are taking your wife over the mountain ? " But it was, and the lady seemed none the worse for it although her clothes froze upon her.

That these trips were not relished may be judged from the remarks of John de Bremble, of Canterbury, who crossed the Great St. Bernard in February, 1188, on his way to Rome. His ink froze in his bottle, and, to quote from Coolidge, " feeling myself so much nearer heaven that I was more sure that my prayer would be heard, ' Lord,' I said, ' restore me to my brethren, that I may tell them, that they come not to this place of torment.' "

Wheeled traffic did not appear on the passes until in 1775 Mr. Greville drove his phaeton up the St. Gotthard, to every one's amazement.

In addition to craggy paths over passes, an alpine journey might also include hazardous navigation

across the numerous lakes which occupy the lower levels of the valleys, or at least, so thought Benvenuto Cellini on his journey from Padua to Paris in 1537. He was driven to selecting the way through the Grisons, for the war between the French and the Imperialists made the more westerly routes unsafe. The passage of the Bernina and Albula was effected early in May when they were still covered with snow " at the utmost hazard " of their lives, and presently Cellini arrived at Wallenstadt. Next day he had to cross the Walensee, but, " when I saw the barks, I was terribly frightened, because they were made of deal boards, neither well nailed together or even pitched ; and if I had not seen four German gentlemen, with their horses, in one of them I should never have ventured on board, but have turned back directly." After consoling his timid companions with the example of the Germans and the observation that as the lake was not of wine but of water, those gentlemen could not have had any greater intention of allowing themselves to be drowned in it than they had, he embarked. After they had sailed some way, a storm sprang up, and they thought that every moment was their last. As a precaution in case the boat really did get swamped, they bridled their horses and got ready to hang on to them as they swam to the shore. Fortunately, this interesting method of life-saving did not have to be put to the test, and they managed to get ashore on a tongue of land from which they had a difficult scramble to

Weesen. As Cellini was wearing a coat of mail with heavy boots and carried a fowling piece, the ascent must have been tiresome.

The impediments to the development of alpine touring in early times were, however, not all of a material nature, for there were spiritual obstructions as well. The Alps were haunted and inhabited by strange spirits and by fearsome dragons. A good example of this can be found in the legends attached to Mount Pilatus, near Lucerne. According to these, Pontius Pilate's body was thrown into the Tiber after he had committed suicide. The result was a bout of frightful weather for which Pilate was held responsible. So his body was fished up from the Tiber and taken to Vienne where it was dropped into the Rhone, only to produce the same disastrous result. After a similar experience at Lausanne, it was resolved to get rid of him for good and all by putting him in the lake on Mount Pilatus. There he began by causing the same trouble, but after being exorcised, he agreed to remain quietly in his lake except on one day in the year. On Good Friday he sat on his judge's throne in the middle of the lake dressed in his scarlet robes and any one who had the misfortune to see him was bound to die within the year. Otherwise, his conduct was unexceptionable unless he was teased by having objects thrown into his lake, whereupon lightning, thunder, and other meteorological catastrophes would immediately ensue. It may be mentioned

IOACHIMUS VADIANUS Med. et poeta.
Nasc. Sangalli in Helvetyi
An.
Obiyt. an 1551
Phoebus utrung tibi dederat VADIANE, canendi
Arte simul polles, paeonis, arte simul

FIG. 3.—Joachim von Watt.

that Pilate's wife Procla was accommodated in a neighbouring pond.

To avoid the calamities of Pilate's wrath, the government of Lucerne expressly forbade any one to approach the lake on the mountain, and so strongly was the legend believed that six clerics who had attempted to climb Pilatus were severely punished in 1387.

This state of affairs prevailed until, in August, 1518, Joachim von Watt, Burgomaster of St. Gall, and Reformer, otherwise known as Vadianus, obtained permission from the Lucerne government to make the ascent. Together with his companions, Oswald Myconius, Johannes Xylotectus, and Conrad Grebel, he successfully reached the lake (not without perspiration but without other untoward results). The peasant who accompanied them almost made them swear not to do anything unseemly in the presence of the lake, and above all, not to throw anything into it. After ascending one of the peaks of Pilatus, the party returned safely to Lucerne.

In 1555, the distinguished Conrad Gesner, the greatest naturalist of his century, arrived in Lucerne bent on the same errand. The government gave him the necessary permission, and, as a token of appreciation of so important a visitor, a gift of wine. On August 20th, he set out with his companions and the wine carried on the back of the minister publicus (court usher) of the town of Lucerne. They stayed at a hut at the foot of the mountain, and next morn-

ing, after blowing a blast on the alphorn, successfully accomplished the ascent.

The legend was not finally exploded until 1585, when Johann Müller of Lucerne deliberately taunted Pilate by throwing stones into the lake.

FIG. 4.—Conrad Gesner, from Grand-Carteret.

An account of the dragons which were supposed to infest the mountains is reserved until Chapter VII.

Lastly it is not without interest to consider the comfort of a journey, and in particular that of the inns, in the sixteenth century. For the purpose of forming an opinion on the merits of the hotels of

those days, there is fortunately a Colloquy of Erasmus, in which he gives a remarkable description of a visit to a typical inn in " Germany," which for this purpose may be held to apply to the inns of Switzerland also. For picturesqueness it is difficult to improve on the words of Sir Philip L'Estrange's translation :

" Mine host never salutes his guest lest he should be thought to have some design upon him, which is looked upon as below the dignity and gravity of a German. When ye have called a good while at the gate, the master of the inn puts his head out of the stove-window,* like a tortoise from under his shell, (for till the summer solstice they live commonly in stoves), then does he expect that you should ask him if there be any lodging there. If he makes you no answer, you may take it for granted there is ; and if you enquire for the stable, without a word's speaking he points you to't, and there you may go and curry your own horse as you please yourself ; for there are no servants there to do that office, unless it be an inn of extraordinary note, and then you have one to shew you the stable, and a standing for your horse, but incommodious enough, for they keep the best places for noblemen, as they pretend, that are yet to come. If you fault anything, they tell you at next word, you'd best look out another inn. . . . When you have drest your horse, you come whole into the stove, boots, luggage, dirt and

* Stove, guest-room, stube.

all ; for that's a common room for all comers. . . . In this stove you put off your boots, don your shooes, change your shirt if you will, hang up your cloaths, or set yourself a drying. If you have a mind to wash, the water's ready ; but then you must have more water to fetch off the dirt of that. . . . If you come in at four after noon, you must not expect to sup before nine or ten. . . . They never make anything ready till they see their whole company, that they may have but one work on't. . . . So that you shall have betwixt fourscore and an hundred persons sometimes in the same stove. . . . One's combing of his head, another wiping off his sweat, a third cleansing his boots or hob-nailed shooes ; others belching of garlick. . . .

" Take notice now that t'is a mortal sin to call for anything. When t'is so late that there's no hope of any more guests, out comes ye an old grey bearded servant, close cropt, with a sour crabbed look, and in a sordid habit. . . . He overlooks the place, and counts to himself the number of the guests ; and the more company, the more fire he puts in the stove, though they were half smothered before : for t'is a token of respect to stew the people into a sweat. If any man that's ready to choke with the fume, does but open the window never so little, mine host bids him shut it again. . . .

" By and by comes your bearded Ganymede in again, and lays ye his just number of napkins upon the table ; no damask but the remnants rather of

an old sail . . . When they are all seated, out comes the dog-looking greybeard again, counts his company once more over, and by and by brings every man his wooden dish, with a spoon of the same mettle, and then a glass ; a while after comes the bread, which the guests may chip at leisure while the porridge are a boiling ; for there they sit waiting perhaps some half an hour. . . . At last, in comes the wine, and wine that for the sharpness and subtlety of it is fitter for a schoolman than for a traveller. . . . By this time comes in a morsel to pacify a barking stomach ; and after that, in great pomp, follow the dishes. The first with sippets of bread in flesh porridge ; or, if it be a fish-day, in a soupe of pulse. After that comes in another soupe ; and then a service of butcher's meat that has been twice boiled, or of salt meats twice heat ; and then pulse again, or perhaps some more substantial dish. . . .

" Now t'is death for any man to say, take away this dish, here's nobody eats ; for you are bound to sit out your time, which they measure by an hour glass. And at length out comes your old servant again, or mine host himself and asks ye, ' What cheer, Gentlemen ? ' . . . There's such a singing, bawling, gaggling, leaping, and thundring up and down, that there's no hearing one another . . . and there you are condemned to sit in spite of your heart till toward midnight. At length when the cheese is taken away (which must be rotten and full of maggots, or they'll have none on't), in comes

your Ganymede once again, with a wooden trencher, and so many circles and semicircles drawn in chalk upon't. This he lays upon the table with a grim countenance, and without speaking. . . . They that understand the meaning of all this, lay down their money one after another, till the trencher's covered : the servant takes notice who lays down, and then reckons it to himself; if all be paid, he gives you a nod. . . .

" If you are weary with your journey and would go to bed, they'll bid you stay till the rest go too. . . . And then every man has his nest shew'd him, and in truth it is very properly called a bed-chamber, for there's nothing in't but a bed, that a man can either carry away or steal. . . . Your sheets are washed perhaps once in six months. . . . "

Modern travellers have indeed reason to be grateful to the hotel-keepers' colleges.

Peyer records a number of early ordinances for the control of inns, and some of them are of considerable interest. By a Zürich ordinance of 1314, guests must have their knives taken from them, lest trouble ensue with heat of wine. Before this, neither food nor drink might be served, unless the use of the knife was specially permitted. In Berne, it would seem that prices had been exorbitant, for an order of 1521 provides that innkeepers must serve a midday meal of meat and fish for 2 groschen, and an evening meal for 1 groschen. On the other hand, in Zürich, the guild of innkeepers must have

been influential, for by an order of 1688, a burgher was allowed to invite a guest to a meal in his own house, but not too often. It seems that there was a tendency to eat to excess on occasion, for Fynes Moryson refers to a regulation of Berne according to which a banquet was not allowed to last longer than five hours.

Appendix I

Taking together the accounts given by Campell, Münster, Schöpf, Simler, Stumpf, and Tschudi, the following passes in the central Alps are identified by name or by description by sixteenth-century writers.

Albrun
Albula
Antrona
Aprica, Passo del ?
Bernard, Great St. (Mons Jovis)
Bernardin, St. (Vogeler)
Bernina
Brünig
Casanna (Chiaschauna)
Cimes Blanches
Collon, Col de
Fenêtre, Col de ; *or* Ferret ?
Fermunt
Fimber
Fless
Flüela
Furka
Futschöl
Gemmi
Glas
Gotthard, St.
Grialetsch
Gries
Grimsel
Hahnenmoos
Herens, Col d'
Jaman, Col de
Joch
Julier
Klausen (März)
Kloster
Kunkels
Lötschen
Lukmanier (St. Barnabas)
Luziensteig
Maloja
Monte Moro (Mons Martis)
Muretto (Melancus)
Nufenen (Nify)
Oberalp (Crispalt)
Ofen (Fuorn, Buffalora)

Panixer (Wepch)
Parpan
Plassecken
Pragel (Auf Bergen)
Rawil
Safierberg
Sanetsch
Sassello
Scale, Monte delle
Scaletta
Scarl (Crüschetta)
Schlappiner
Schlinig
Schollberg (Scala)
Schyn
Septimer
Simplon
Stallerberg
Splügen (Urscheler)
Strela
Theodul, St. (Mons Silvius, Gletscher)
Trupchum
Umbrail (Wormserjoch)
Vereina
Weisstor
Zadrell (Vernela)
Zeblesjoch

This list is doubtless incomplete, and other passes such as the Col de Fenêtre de Balme, Cheville, Forcola, Greina, St. Jorio, Krüzli, and Pillon passes are recorded by Wäber as having been mentioned in early documents. A notable absentee from all early accounts is the Susten.

Appendix II

The alphorn, which Gesner did not disdain to blow, is a most interesting instrument. It has become the recognised alpine instrument, although, according to Gysi, it originated on the Asiatic steppes. Its use by alpine shepherds, originally for the purpose of "blowing" prayers, morning and evening, is on the wane and has been for some time. Early in the nineteenth century, the authorities of canton Berne took steps to preserve it from extinction, and in 1826 a fortnight's course of instruction in the art of alphorn-blowing was held in Grindelwald. Similar efforts have been made quite recently in the Emmental, and so there is a possibility that the art will, in the future, no longer be supported solely by the practice of begging.

Another interesting feature of the alphorn is that it seems

to have been the model for that remarkable vocal exercise known as Jodelling, the melodies of which are, curiously enough, always in the major key. It seems that Pope Gregory the Great permitted a jodelled rendering of the Halleluja. However, at the singing school of the Abbey of St. Gall in the eighth century, it was forbidden to make sounds which imitated " ribald jesters, jodeller Alp-inhabitants, shrieking of scolds, or cries of animals." On the other hand, jodelling must have commended itself more favourably to Queen Anne, for she had an Appenzell Ranz des Vaches performed in her private chapel.

CHAPTER III

THE EARLIEST ALPINE TOURISTS

In the preamble to the second book of his description of Transalpine Gaul, Ægidius Tschudi of Glarus complains that a former book, "De prisca ac vera Alpina Rhætia," was published in 1538, "under my name, against my will, wish, and order, behind my back, by Mr Sebastian Münster, Professor of Hebrew in Basle." Tschudi goes on to say that he had read the early authors and had wandered over several alpine passes before he prepared his manuscript, when he was appointed Bailiff of Sargans in 1530. Next, he became Bailiff of Baden in 1533, and after that he served in several wars under the king of France. During these eight years his manuscript was neglected, and it was still uncorrected and far from ready for publication when he received a visit from his old tutor, Henricus Loretus Glareanus. He showed him the manuscript, and the old man took it home with him to Freiburg im Breisgau to read, promising to return it within two months. Shortly afterwards, Münster came to Freiburg and visited Glareanus, who showed him the manuscript. Münster was so interested in it that he entreated

Glareanus to lend it to him for four or five days, which he did. Münster rushed back to Basle, took the manuscript to pieces, set a number of scribes on, day and night, to copy it, and then bound it up again, presumably to return it. Not content with that, Münster translated the text into Latin and promptly published a German and a Latin edition of Tschudi's book.

Tschudi was naturally furious, whereupon Münster came to see him in Glarus, bringing many copies of the book as a peace offering, and protesting that he only did it in order to spread abroad Tschudi's name and fame. Be that as it may, while sympathising fully with Tschudi in his remarkable misfortune, it is difficult to regret the incident to-day, because it led to the enumeration of the passes which Tschudi had crossed, in the preamble mentioned above.

This preamble was written about 1571, and, according to him, forty-three years after the famous manuscript, which must therefore have been written about 1528. Now, the passes mentioned are : the Great St. Bernard, St. Bernardin, Furka, St. Gotthard, Lukmanier, Septimer, Splügen, and St. Theodul. It is clear, therefore, that Tschudi's tour was a fairly extensive one, and, if Vadianus' ascent of Pilatus is regarded as the first alpine excursion (in Switzerland), Tschudi's is the first tour. Unfortunately, there is no narrative of it, and the only further information which Tschudi

PLATE II.—Aegidius Tschudi, from Jakob Vogel.

[*To face page 26.*

gives is that he was on the Great St. Bernard in 1524. His description of the Theodul is interesting, for, as Coolidge remarks, it is clearly that of an eye-witness. The Theodul, "Silvius Mons, by Germans called the Gletscher because of the snow and ice upon it which never melts or disappears, is four Italian miles across, and can be crossed even in summer on horse or foot without let or hindrance. . . . From the top, the pass forks so as to lead down by two ways into the valley of Aosta; that on the right is by the Val Tournanche to Chatillon; that on the left by the Val d'Ayas to Ivrea. Towards the Valais the pass also leads into two valleys; that on the left, called the Val d'Herens, leads to Sion; while that on the right, the valley of Matt, in which the Fischbach takes its source, leads to Visp." In this description Tschudi alludes to the passes of the Cimes Blanches and the Col d'Herens. As a point of geography it may be noted that at this and until quite late times, the St. Gotthard massif was regarded as the highest part of the Alps, for the excellent reason that the main watershed of Europe lay on it and the rivers flowed away from it in all directions.

For the first narrative of an alpine tour, it is necessary to turn to Johann Stumpf of Zürich. Stumpf was the author of the famous Swiss Chronicle which was published in 1548. For the purpose of collecting material for this, Stumpf made a tour of the Valais in 1544, and left an account of it which

has recently been brought to light by Escher and by Meyer von Knonau. The details as to dates and expenses incurred are purposely included here, as

FIG. 5.—Johann Stumpf, from Grand-Carteret.

an indication of the speed of travel and the cost of living in those days. As a very rough approximation of the value of the Zürich currency and as a still rougher guide to that of the other cantons, the florin of 16 batz may be taken as 2*s*., the batz of $2\frac{1}{2}$ schellings as $1\frac{1}{2}d$., and the schelling of $1\frac{1}{2}$ kreuzer as $\frac{3}{5}d$.

Stumpf started from Zürich on Friday, August 22nd, 1544, with a companion whose name is never divulged. They made their way westwards, and presently had to negotiate the hill known as the Albis, as soon as they had reached the top of which, they " did a drink " (price, 3 schellings). Thence they descended to Kappel where they put up for the night (6 sch.), and where, only thirteen years previously, their townsman Zwingli fell in battle. (Zwingli was actually born at Alt St. Johann in Toggenburg, but his life work made him a Züricher.)

Next morning, Stumpf and his friend made their way to Zug, taking a meal at the inn " Zum Schmutz " (11 sch. of Lucerne), and then went over the lake (fare, 2 pieces of eight—doppelvierer) to Buonas ; past Ebikon where they had a refreshment (5 sch. 4 heller of Lucerne), and arrived at Lucerne in time for dinner " Zur Chronen." Here it seemed that Stumpf's footgear required attention, for there is an entry of 2 batz paid " pro calcimentis resarciendis." After informing themselves of the history of the institutions of Lucerne, and discharging their bill (5 batz of Lucerne and 5 batz of Constance), they started off on the morning of the 24th to Winkel, whence by lake (2 sch. of Lucerne), they came to Stansstad. At Stans they took a meal off Casper Offners (4 batz), and it seemed that their equipment was still incomplete, for they spent 2 sch. 8 hel. on a new purse-string. Presumably, the frequent

loosenings to which the old one had been subjected in paying for drinks had worn it out.

Continuing on their way, they stopped for a drink at Wolfenschiessen, and arrived at Engelberg in the afternoon. They did not, however, enter the monastery at once, but only " post potum in taberna," and there may have been a good reason for this extra fortifying. Stumpf as a native of Zürich, where the reformed religion had already been established for twenty years, was about to visit the Abbot of Engelberg. At this time, Calvin was in what may be called full blast at Geneva, and Stumpf may well have felt that he required all his courage in entering the Roman portals of the monastery.

The monastery received the two travellers very graciously, and Stumpf devoted his time during his visit to collecting data concerning the history of the house. Next day (the 25th), after a meal and distributing tips to various servants, they started off for the Joch pass, guided by a peasant and a shepherd or cheesemaker. On the other side of the pass is the Engstlenalp with its miraculous spring, concerning which Stumpf has a lot to say in his Chronicle. " On this alp is a spring which issues from a rock into a stream at which cattle are watered. This spring only flows twice a day, once in the morning and once in the evening, in fact, just at the times when it is customary for cattle to drink. . . . When at the end of August the new snow has fallen and

Ein jeder Gradus helt eine gemeine Schweitzer Meylen / Aber eine Schweitzer Meyl haltet Acht tausent Italianischer Passus oder Schritt / treffendt auff zwo stunden Rosswegs / und drithalben stunden richtiges Fůssganges / Also findet sich die Rechnung Antonini gemeinlich allenthalben / dann die Schweitzer Meylen seind vil gröſſer dann die Romischen.
Aargew
Burdgew
Ampt Thun
Emmental
Oberwalden
Hasliertal
Kienholtz
Frutigertal
Habcherertal
Schwarzwald
RAV
RACI

FIG. 6.—Map of the Aargau and part of the Bernese Oberland, from Stumpf's Chronik, Zürich, 1548.

the cattle are driven on to the lower pastures, the spring ceases to flow, and does not start again until the following June, when the cattle are brought back. . . . A wonderful God is our God in His Holy Works, Who has also given to these austere mountains all manner of peculiarities which those who do not inhabit them have greatly to wonder at.

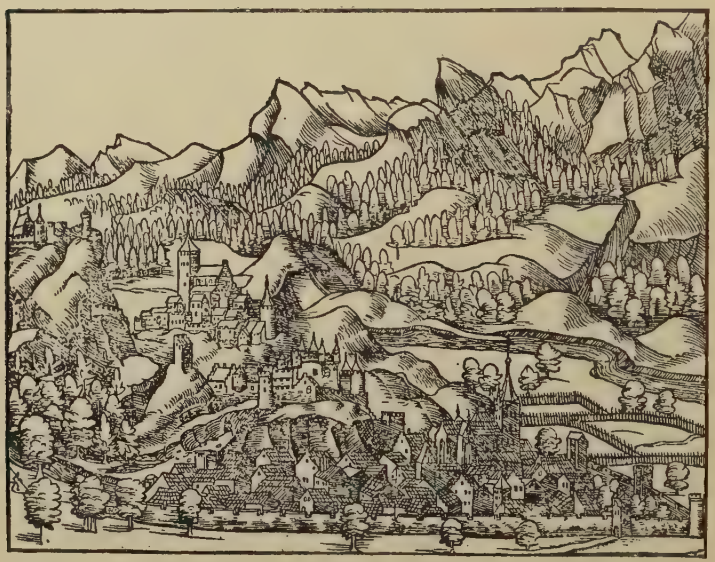

FIG. 7.—View of Sion, from Stumpf's Chronik, Zürich, 1548.

This stream is also said to have the remarkable habit of stopping its flow and giving water neither morning nor evening for a time, if anything dirty is thrown into it, or washed in it."

Continuing down the valley, they slept at Wyler in the house of a peasant who treated them handsomely and gave them good wine. On the 26th their

PLATE III.—Map of the Valais and part of the Bernese Oberland, from Stumpf's Chronik, Zürich, 1548.

[*To face page* 32.

way lay up the Haslital, past Guttannen, where they had a meal, to the hospice on the Grimsel. Turning again to the Chronicle, " by the lake stands an inn and hospice, built there to harbour travellers, called Zum Spital. A wretched building, for wood and lime have to be carried thither on horseback. . . . The people of Hasli keep this hospice and instal a host or hospice-master, who gives passing travellers food and drink for their money, and to those who cannot afford to pay he gives bread and food for the sake of God. It is a bad inn, but one can usually find good wine, brought over the mountains on mule-back from Valais and the Val d'Ossola."

The 27th must have been a heavy day for Stumpf and his friend. They descended the Grimsel to Obergestelen, where they ate, and then started on their way down the Valais. Past Ulrichen and Münster, Niederwald, Lax, and Grengiols, they went, noting whither the passes at the ends of the various valleys led, and where the bridges over the Rhone were, to Mörel, where they turned in. It is remarkable that they abstained from drinks the whole of the day.

Next morning saw them pass Naters to Brig, where they lunched, Visp, where they dined, and thence they went to a house called Beckenried to spend the night. On the 29th, after a visit to Leuk and calling on Captain and Mrs. Vinschi, who were not at home, they continued through Sierre to Sion, staying with Hans Etter. They presented letters of introduction

to the bishop, who referred them to a certain Mr. Christian, who supplied them with the information they desired. In the evening of the next day they set off to Saillon, where they slept, arriving at Martigny on the 31st. There they fed at the inn kept by their townsman, Hans Helbling, and called on Philip de Platea, who also was from home. Then,

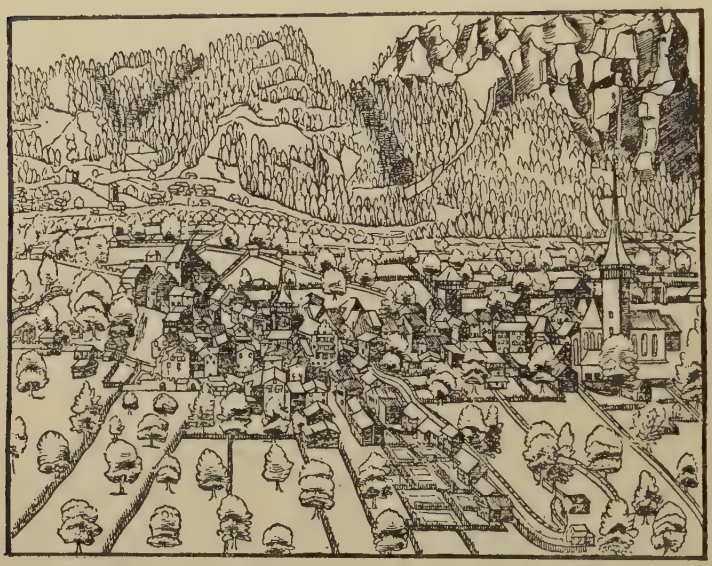

Fig. 8.—View of Altdorf, from Stumpf's Chronik, Zürich, 1548.

passing Evionnaz where they had a drink (apparently the first roadside refreshment for a week), they arrived at the monastery of St. George at St. Maurice, where Stumpf busied himself with the history of the house. This place was the site of the massacre of the Theban legion by order of Maximin.

On the 1st of September they got no further

(owing to the foulness of the air) than Aigle, at the entrance to the Pays de Vaud, most of which Berne had conquered from Savoy only eight years before. The following day took them past Villeneuve, the castle of " Zylium " whence Bonivard had been released eight years previously, Vevey, where they had a meal, Cully, where they had a drink, to Lausanne,

FIG. 9.—View of Lucerne, from Stumpf's Chronik, Zürich, 1548.

where they were met by some friends, and stayed " Zum Engel." The following day was given up to study and collecting information, and on the 4th they proceeded, not without a drink on the way, to Romont. The next day took them through Fribourg, where they had dinner " Zum Hirzen," to Sensen, whence they reached Berne, on the 6th. There they

stayed " Zum Falken," and indulged in the luxury of washing their shirts and having their shoes cleaned. The latter process had to be repeated on the following evening, at a cost of 2 batz 1 kreuzer, at the " Wyssen Krüz " at Bienne, which they reached through Aarberg. On the 8th their night-quarters were " Zum Lewen " at Solothurn, and the following

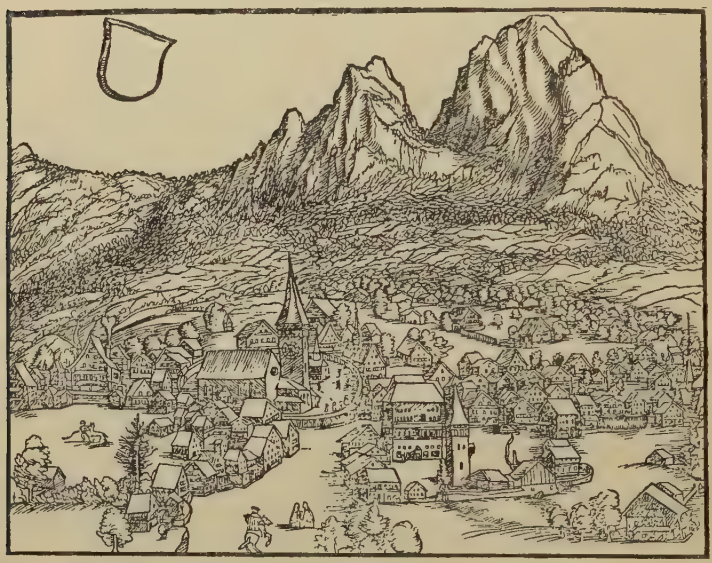

FIG. 10.—View of Schwyz, from Stumpf's Chronik, Zürich, 1548.

evening found them at St. Urban. Then, on the 10th, having brought them to Zofingen, the earliest narrative of an alpine tour stops abruptly.

In 1545, there is definite evidence of a journey undertaken for enjoyment. As quoted by Walder : " On the 17th day of April of the year 1545, six companions left Zürich, bent on the pleasure of a

walking tour, to visit some towns of Italy and also to see and to experience." Hans Fries was the leader, and the way lay through Chur and Thusis to the Splügen pass. At Campodolcino they slept in a fowl-house, and at another place where they arrived drenched through, they all had to sleep in one bed, for the only alternative was the floor. The

FIG. 11.—View of Lucerne, from Münster's "Cosmographie Universelle," Basle, 1550.

This wood-cut is based on that published in Etterlin's Chronik of 1507, and, like the latter, is a reversed image.

tour lasted seven weeks, and the return journey was made up the valley of the Adige, past Bolzano and over the Reschen Scheideck to Landeck, and then back over the Arlberg pass. In those days, the road (built in 1473) did not traverse the whole length of the Via Mala, but climbed up to Rongellen, whence

it descended steeply to Thusis. On the south side of the Splügen pass the way lay through the gorge of the Cardinello, where Marshal Macdonald's army suffered so severely on its passage in December, 1800.

The last person to be considered in this chapter is none other than Sebastian Münster, with whom, as has already been shown, Tschudi had so much annoyance. As he says in the later editions of his Cosmography, Münster determined to verify his description of the Valais by making a journey there himself, and this appears to have taken place in 1546. There is no narrative, but here and there he gives accounts of his experiences which are worthy of record. With regard to the Gemmi pass, he says that " the path goes up in the form of a snail-shell or screw, with continuous turns and bends to right and left; it is a narrow path and dangerous, especially to drunkards and persons subject to giddiness, for whichever way the eye looks, there are only precipices and deep sheer drops to be seen, so that even those whose heads are steady cannot regard them without horror." " This I know full well, for I climbed the mountain from Leukerbad to inspect it, and quaked to my very heart and bones." Although it was the 4th of August, he shivered when crossing the Furka, and his horse actually had to cross three or four patches of snow or ice. On the other hand, he did not feel half as cold when on the St. Gotthard.

FIG. 12.—Sebastian Münster, from Münster's "Cosmographie Universelle," Basle, 1550.

An interesting entry is made in the later editions of his book concerning the Theodul. " In May, 1595, the way over the Matterberg was interrupted by a chasm six feet wide so that one could not cross it, and it was necessary at great danger to make a bridge over it ; mule traffic was resumed on June 17th of the same year."

Appendix

Tschudi, Stumpf, and Münster, and also Simler, all draw attention to the fact that the districts or communes into which the Valais was divided are called Zehnten, or Dixains. Although this word seems to imply the meaning of " tenth," the curious fact is that there were only seven Zehnten. These were : Goms (" the catholic "), Brig (" the rich "), Visp (" the noble "), Raron (" the prudent "), Leuk (" the strong "), Sierre (" the delicious "), and Sion (" the capital").

To explain the meaning of Zehnten, Tschudi, Stumpf, and Münster treat it as if derived from Zehntgericht, Zehend-Ordnung, Diœkesis, meaning Jurisdiction, based on the fact that each of the Zehnten had its own. Simler refuses to commit himself to an explanation, while Coolidge inclines to Gremaud's view. According to this, the limitation of the Zehnten to seven is more recent than the word itself. In 1384, two districts of the Valais, Ardon-Chamosson and Martigny, were lost to Savoy ; while in 1335, Granges had separated itself from Sierre. It is possible, therefore, that there were originally ten Zehnten. The number then became reduced to seven and remained at that, for when the Bas Valais (Ardon–Chamosson and Martigny) was retaken from Savoy in 1476, and the territory of Monthey with the left bank of the Rhone as far as the lake of Geneva in 1536, these districts were treated as subject to the Haut Valais and its seven Zehnten.

PLATE IV.—View of Baden, from Merian's "Topographia Helvetica," Frankfort, 1642.

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CHAPTER IV

THE BATHS

FROM early times it was known that several of the springs in Switzerland had therapeutic properties, which made them the specific goals of a certain kind of traveller. Some of these springs, such as Leukerbad, Pfäfers, and St. Moritz, are definitely in the midst of the Alps. Others, such as Baden, are in the plain of Switzerland, and of the latter there is a remarkable description given by Poggio, Papal secretary at the Council of Constance, who visited Baden in 1417.

" The town of Baden (which means ' the baths ') is a fairly prosperous place situated in a valley overhung with mountains, by the side of a large and swift river, which flows into the Rhine six miles away. By the river, near the town, is a most beautiful bathing establishment. In the middle is a spacious courtyard surrounding which are magnificent lodgings, capable of accommodating a large number of people. Inside each house is a private bath, in which only those bathe who lodge there. The public and private baths together number thirty.

" There are only two public baths, open, and situated on each side of the courtyard. These are baths for the proletariat and the baseborn herd, to which matrons and husbands, youths and unwed maids, and the dregs of all around, descend. It is ridiculous to see decrepit old women and girls entering the water naked before everybody's eyes, revealing to all what were best hidden.

" Surrounding the bath are galleries in which men are accustomed to lounge, talking and looking on. Anyone is free to watch the others bathe, and to converse, joke, and refresh the mind as the women enter and leave the water. There are no porters to prevent one from entering, and no suspicion of dishonesty is attached. . . .

" A large crowd of noble and humble birth come here from hundreds of miles around, not so much for the sake of their health as for pleasure. All the lovers, all the suitors, and all those who live for enjoyment, meet here to fulfil their desires, many of them feigning bodily ailments, when they are troubled in mind. So you will see innumerable women of surpassing beauty, without husbands, without relatives, with two maids and a page, or with some little old duenna, to whom it costs less to give the slip than a decent meal. . . . "

A century and a half later, when Montaigne visited Baden (in 1580), it would seem either that the tone of the place had improved, or that the private baths were exempt from Poggio's comments,

for Montaigne says that " he who wishes to take ladies to bathe with respect and delicacy may take them there." The latter must be the true explanation, for when Fynes Moryson visited Baden twelve years later (1592), he remarks that " many

FIG. 13.—The Baths of Leukerbad, from Münster's " Cosmographie Universelle," Basle, 1550.

having no disease but that of love, howsoever they faine sicknesse of body, come hither for remedy, and many times find it." Coryat gives a similar account as a result of his visit to Baden in 1608, and it would appear from Casanova's adventures that the spirit of carnival had not wholly departed

from some Swiss baths by the eighteenth century. Montaigne stayed five days at Baden, bathing and taking the waters, and he was full of praise for the heating arrangements. The stove in his room burnt neither his face nor his boots, and was free from the smoke characteristically emitted by French stoves. Still more remarkable, the Swiss had glass panes to their windows, swept the floor, and used knives and spoons, so that they never had to put their hands in the dish. Most extraordinary of all, they kept their windows open even at night.

Early in the seventeenth century, Switzerland was toured by Matthew Merian (of Basle), whose engravings were accompanied by a text written by Martin Zeiller, when they were published in 1642. Some of the descriptions of places are remarkable, and that of the properties of the waters of Baden is still inspired by Hippocratic physiology. His account is as follows :

" The water has much sulphur and a little alum. It warms, dries, consumes, and draws out all bad and cold humours, for which reason it is good for all ailments of the head caused by coldness of the brain, such as lethargy, bad memory, weak nerves, strokes, and feeble sight and hearing. It consumes all cold fluids which descend from the brain, warms and dries the stomach, promotes digestion and the action of the spleen and liver, and relieves colic. It is useful for women against ailments of motherhood, stops pain, and cleanses the skin. It is,

however, harmful to those of sanguine temperament."

The baths of Pfäfers owe their origin to the discovery of the properties of a spring in the deep gorge of the Tamina. A bath-house was built in

FIG. 14.—The Baths of Brigerbad, from Stumpf's Chronik, Zürich, 1548.

the fourteenth century, and replaced by a new one in 1420. In 1451, Hemmerlein (quoted by Peyer) describes the cure as consisting of a stay of six or seven days in the water; and the guests actually ate and slept in the bath because the ladders on which they had to climb out of the ravine were so

terrifying. It must have been most unpleasant, for Münster says that " the bath is so small that not many more than a hundred persons can sit in it, and even then they must crowd close together, and sit in the dark like the souls in St. Patrick's Purgatory."

The approach to the baths of Pfäfers was facilitated in the sixteenth century, and a new bath-house and an inn were built in a more convenient place, in 1630, the water being led to it in an artificial channel. The regulations of 1619 (Peyer) smack of the Thirty Years' war, which had then just begun. " No guest may smite another with his fist, nor may he injure him with weapon, knife, or dagger ; nor may anyone do violence to another by splashing, ducking, or throwing into the water. No one may pledge another with drink, lest from fullness with wine accidents might happen ; nor may wine be imported from elsewhere. Those who subscribe to the new faith must keep it to themselves, and the singing of psalms in German is expressly forbidden on penalty of a fine. Those, however, who feel an irresistible need to sing in their bath, may sing other holy or at least reputable songs, provided that the baths be not filled with din. When the bath-master reads prayers, morning and evening, everyone must praise and thank God for the gift of the noble and rare waters. Men and women other than married couples must bathe in separate compartments ; should this be impossible owing to the

PLATE V.—Matthew Merian, from de Laborde's "Tableaux Topographiques, Pittoresques, etc."

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great number of guests, peace and quiet must nevertheless reign."

Zeiller's description of the efficacy of the waters of Pfäfers contains a most interesting feature. "The water is very suitable for paralysed and tired limbs, especially those of working people. It removes the cramp which results from anger or abuse of wine, . . . it cures those who have been damaged by torture, gunshot and sword wounds, clots of blood resulting from bruises, falls, and blows, and frost-bitten limbs."

Of Leukerbad, Stumpf says that the water of the spring is so hot that it is possible to stew fowls and boil eggs in it, while Münster provides a remarkable illustration of the baths. Zeiller's account, which reads like the prospectus of a modern Kurverein, is as follows: "It is a pleasant water, . . . good for melancholic humours and bleary eyes."

St. Moritz had the praises of its waters sung by no less a celebrity than Philip Aureolus Theophrastus Bombastus von Hohenheim, otherwise known as Paracelsus, "alchemist, quack, rebel, prophet, and genius." In 1539, he wrote: "Of all the mineral springs in Europe known to me, I give preference to that which I found in the Engadine at St. Moritz, the water of which is in August acid like vinegar. He who takes this water medicinally regains his health, and will never be troubled by stone or gravel, gout or arthritis. It strengthens the stomach so that it can digest tartar even as an

ostrich digests iron and a blackbird sand. And not only tartar, but everything else in food and drink which might bring about a disorder." It seems to have been a heroic remedy, for Walser says of the St. Moritz water that "its action is fierce, it makes one feel quite silly in the head and weak, so that for the first few days one can scarcely cross the road." In 1650, Malachrida devoted a sonnet to the waters of St. Moritz.

> "Even as flowers when watered revive,
> So with the help of this life-giving spring
> Must every languid age flourish anew.
> Oh wonder! Iron, oftentimes so deadly,
> And glass which is of such ephemeral life,
> Conspire here to give man immortality."

CHAPTER V

A WAR IN THE ALPS

THE Alps played an interesting part in the Thirty Years' war, though one that is but little known, even to those who nowadays visit the regions where its events unfolded themselves. In the year 1634, the Swedes were completely defeated at Nördlingen in south Germany by the Imperialists, and it looked very much as if the cause of the Protestant states (which cause was also held by that English princess, the Winter Queen), was about to be lost to Catholic Austria and Spain. This was not at all to the liking of France, most of whose frontiers had Habsburg dominions on the other side of them. Richelieu had for some time been subsidising the enemies of Austria and Spain, but after the battle of Nördlingen it became necessary to take more energetic action. And so Europe was to be privileged to see the incongruous spectacle of Catholic France actively supporting Protestant states against Catholic Austria and Spain. As if to make matters still more curious as regards the campaign which was about to be fought in the Alps, Richelieu, who had just subdued the Huguenots at La Rochelle,

appointed a Huguenot, Duke Henry de Rohan, to command the French corps which was to operate in the Grisons.

Following upon religious disturbances, the Spaniards (who then held the Milanese) had occupied the Valtelline in 1620, and their possession of this territory enabled them to communicate freely with their Austrian allies over the Umbrail pass. No other line of communication was open to them, for the confederation of the thirteen Swiss cantons and the republic of Venice, which held Bergamo, were neutral. In 1633 the Duke of Feria, and in 1634 the Infante Ferdinand of Spain, had led armies over the Umbrail pass, contributing to the victory of Nördlingen. The object of the French was therefore to clear the Valtelline of its invaders, and so sever the link between their two enemies. For this purpose a French force had previously been sent to the Grisons in 1624 under the Marquis de Cœuvres, but little had been achieved, and the final " liquidation " of the affair was left for de Rohan to accomplish.

In March, 1635, de Rohan's army was in Alsace, when he received orders to march into the Grisons, where there still were a few French troops under M. de Landé. The task was a delicate one, for not only were de Rohan's orders to make his way through the territories of the Swiss cantons, but also to do it in such a manner as not to offend them. As de Rohan said, " to pass through Switzerland without

permission was to rouse the cantons ; to ask permission was to divulge the plan of operations ; to split up the army was to lose half of it ; to pass in a corps was unexampled in Switzerland. The difficulties were not lessened by the fact that the Duke of Lorraine with a strong army held the Forest Towns (Rheinfelden, Säckingen, Laufenburg, and Waldshut) on the Rhine, whence he could impede the passage."

What de Rohan actually did was to apply in turn for permission to go through each territory that lay on his road, excusing himself for not having put the matter before a general Diet of the cantons by alleging lack of time. So he led his army through Basle, Aargau, which belonged to Berne, Baden, Zürich, St. Gall, and Altstätten, to Chur, and succeeded in this way in directing his line of march mostly through Protestant states, which were well disposed towards him. He reached Chur on April 12th.

As soon as he had entered Swiss soil, de Rohan had ordered de Landé to leave the Grisons with his troops and to occupy Bormio, Chiavenna, and Riva at the head of the lake of Como. This they did, crossing the Splügen pass, on March 27th. Leaving garrisons in the forts on the Luziensteig, at Fläsch, and at the junction of the Landquart and the Rhine (the fort now known as Rohan's Schanze), de Rohan entered the Valtelline via the Septimer and Splügen passes. In the lower Engadine, the Val Tasna was

fortified against attacks from over the Futschöl pass. Süs, at the foot of the Flüela pass, was strongly held, and in the upper Engadine, the bridge between Ponte and Campovasto was fortified.

Meanwhile, two armies were preparing to close in upon de Rohan from each side, like the jaws of a vice. On the east, an Imperialist (Austrian) army under Fernamond was preparing to cross the Umbrail pass from the Münstertal to Bormio, while a Spanish army under Serbelloni was to invade the Valtelline from the lake of Como.

De Rohan's army, which was much weaker than that of either of his adversaries, was between them in the Valtelline, and, as it was thought that the Spaniards had begun their attack, it lay nearer the latter. But the Spanish attack turned out to be nothing more than a discharge of musketry in celebration of some feast, and, on June 13th, it was Fernamond who attacked first. By forcing the pass over the Monte delle Scale (between the Valle di Fraele and the Valle di Dentro), the French position at the Bagni di Bormio was turned. The Marquis de Montausier with his regiment escaped from the Valle di Livigno, where he had been stationed, over the Casanna pass into the Engadine. There he was joined by de Landé, who had retreated from Bormio to Tirano, and thence come across the Bernina pass.

Upon news of this set-back, de Rohan hastily retired from the Valtelline to Chiavenna, lest he be caught in the trap, for Fernamond had reached

PLATE VI.—Henry, Duc de Rohan, from the Cabinet des Étampes de la Bibliothèque Nationale, Paris.

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Tirano. Instead of continuing down the Valtelline to join the Spaniards, however, Fernamond turned north to Poschiavo and sent his army over the Forcola di Livigno to the Valle di Livigno, where it remained inactive while awaiting reinforcements. This inaction gave de Rohan the chance, which he seized with vigour. Concentrating in the Engadine near Scanfs, he crossed the Casanna pass and fell upon the unsuspecting Imperialists on June 27th, and drove them back to Bormio. To assist in this action, some of the local Grisons levies advanced from Campovasto over the Levarone pass, while others marched from Pontresina through the Val del Fain (Heutal) and over the Fieno pass. On the following day de Rohan in his turn crossed the Forcola di Livigno to Poschiavo, and resumed his central position in the Valtelline at Tirano.

After this there ensued an amazing series of rushes by the French, alternatively up and down the Valtelline, pouncing on each of their adversaries in turn as they appeared. It began by de Rohan falling upon Fernamond's army at Mazzo on July 3rd, driving him back, and capturing, among others, an English colonel. Then de Rohan turned round and flew at Serbelloni's army, which had at last entered the Valtelline. The Spaniards did not wait for him, however, and retreated precipitately into Milanese territory. De Rohan immediately turned round again and swept up the Valtelline to Bormio, where his army captured the position of the Bagni

on July 19th. Meanwhile, de Landé had been sent round by the Bernina pass to Zernez in the Engadine, whence he was to cross the Ofen pass to Sta. Maria. The local levies crossed the Scarl pass from the lower Engadine. De Rohan also advanced to Sta. Maria

FIG. 15.—Map to show the Duc de Rohan's operations in the Valtelline.

over the Umbrail pass, but the Imperialists abandoned the place before the arrival of the French.

After these meteoric operations there followed a period of rest which lasted until October, when Fernamond returned to Sta. Maria, crossed the Dössradond pass to the Valle di Fræle, and occupied

the pass of the Monte delle Scale and Pedenosso in the Valle di Dentro. At the same time a column was sent over the Monte Cristallo on a track hitherto regarded as impracticable, to take the Bagni di Bormio in rear. To meet this situation, de Rohan sent some troops up the well-trodden road to Bormio, directed de Landé to advance from Zernez up the valley of the Spöl to the Valle del Gallo, and thence over the Fræle pass into the Valle di Fræle ; the local Grisons levies under Colonel Jürg Jenatsch were to reach the same point from the Valle di Livigno via the Alpisella, while other troops held Poschiavo in case Fernamond should reach that place over the Passo di Val Viola. The attack was made on October 31st, and the Imperialists signally defeated.

There remained Serbelloni to be accounted for. That general had cautiously advanced again, and entrenched himself at Morbegno. So, back de Rohan had to track again, and he routed the Spaniards on November 10th. This brought the extraordinary campaign to an end, and it was time for political intrigues to begin.

The campaign which de Rohan had conducted with such skill was fought ostensibly for the purpose of freeing the Valtelline from the Imperialists and Spaniards, but that object had no sooner been achieved than it appeared that the French were not disposed to evacuate it either. This led to political machinations no less remarkable in their way than

the campaign which had preceded them. The hero or villain of these was the Jürg Jenatsch who has been seen co-operating in the field with de Rohan. Jenatsch had been a Protestant minister who took to the profession of arms in order to rid the Grisons of the Catholics. But now, after assisting the French to turn the Austrians out, Jenatsch abjured his faith, turned Roman Catholic, and negotiated with the Austrians to turn out the French. The result of his intrigues was successful, and in 1637, the Grisons re-entered into the undisputed possession of the Valtelline, which they were to retain for a hundred and sixty years. De Rohan did not long survive this surprising outcome of his efforts and fell at Rheinfelden in the following year, being buried in the cathedral at Geneva. The year following that, Jenatsch was murdered, and so passed away the chief actors of the Thirty Years' war as far as Switzerland was concerned.

CHAPTER VI

A GROUP OF ENGLISHMEN

It is now necessary to go back some seventy years before the events of the last chapter to consider the first of a series of English travellers through the Alps. Sir Edward Unton obtained permission to travel abroad in 1563 (1563–4), and a diary of his journey was carefully kept by " Richard Smith, gentleman, some time servante to S^{r} Edward Unton of Wadley, in the Countye of Bercks, knight." This document has recently been brought to light by Yeames. The journey lay through Germany and over the Brenner pass into Italy, and back through " zwechary," as they called Switzerland.

On October 2nd, Sir Edward and his party left Como, where there was " indifferent good vitaille for travailers the people notwithstanding very subtill and craftie," and came to Lugano. The next day saw them at Bellinzona, and the 4th at Airolo at the foot of the St. Gotthard pass, the engineering of the path over which seems to have impressed them, for they say : " Our way lay amongst mountaines mervelous straite in dyvers places and wonderfully to behold for that they ar made for the most

parte with mens hands forced with stones uppon the sydes of the mountaynes and also hewed oute of the gret rocks in many places so that in many places two horses may not well mete without danger, very stony."

They " ffound extrem cold uppon this hill," and, after passing the hospice (" osterye "), descended to Andermatt, which they called " olsera," the old name given by Stumpf for this town being " Ursella " or " Ursern," by which name the valley in which it lies is known to-day. Shortly after this, they arrived at the Devil's bridge, of which the following picturesque account is given : " from olsera aboute ii enlyshe myles is a brydge which is calld ponte inferno ; it standeth in a straite betwene the mountaines the beginynnge of the ryver of rehin (Reuss !) cometh from mount gadard and at this brydge hath suche a fale amonge the huge stones that is merveylous."

The next of these early travellers to be considered is Fynes Moryson who crossed the central Alps in 1595, having already been in Switzerland in 1592 when he visited the baths of Baden. In 1595 he was at Bergamo, proposing to cross the Alps to get to Geneva, and he elected to travel through the Grisons as providing a route more safe from robbery than that through the Milanese. This was just as well, for he passed " all alone, not so much as accompanied with a foote-man, over the high Alpes, which I think very few have done besides myself."

POST TENEBRAS LVX
GENEVE.
Genff.
1. S. Gervais. 4. La Porte de la Monoye. 7. S. Germain. 10. La Porte du Treille. 13 Boulevard du Pin 16. La Porte Neufue. 19 Moulins
2. Le Chaſteau Vieux. 5. Le Lac Lemen. 8 Maiſon de Ville. 11. Priſons. 14. Boulevard de S. Legier. 17 Boulevard de Loije.
3 La Tour de L'Iſle. 6 La Porte de la Tartaie 9 S Pierre 12 Hoſpitale 15 Porte de S Legier 18 L Hoſpitale

PLATE VII.—View of Geneva, from Merian's "Topographia Helvetica," Frankfort, 1642.

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After taking the precaution of having his horse shod on all four feet with eight sharp and three blunt nails, he rode up the Val Camonica through Edolo and over the Passo del Aprica out of Bergamo into the Valtelline to Tirano, and thence to Poschiavo, where he slept. Next morning he crossed the Bernina pass and came to a place which he calls "Lasagna," now known as Agnas, or Las Agnas, between Samaden and Ponte. On the following day, Fynes Moryson did a long ride to "Lanzi," which must be Lenz, at the entrance to the Lenzerheide and the Parpan pass. This he must have reached via the Albula pass, since Las Agnas is close to Ponte which lies at the entrance to this pass. His next stopping place was Chur, whence he travelled via Wallenstadt to Zürich. After wandering through the Swiss lowlands he reached Geneva, where an amusing incident occurred. While he had been in Italy, Fynes Moryson had formed the habit of touching the holy water in a church for fear of being thought a Protestant. In a church in the city of Calvin he repeated the gesture, but his fingers found themselves in contact with the poor-man's box; the action was perceived by Theodore Beza to whom he was talking, and he was advised to eschew these evil customs.

The remainder of his journey, being outside the Alps, need not be considered, except to mention the monument which he saw on the road from Berne

to Solothurn. On this was the inscription, " The English Juglers knightly beaten in the yere 1425. Poore knaves." This naturally puzzled him not a little, and he turned to Simler's book, *De Republica Helvetiorum*. It is interesting to notice that this work, which was published in 1576, was so sought after that he could only borrow a copy. At all events, in this book he found the passage relating to the incursion of an " English " army into Switzerland, from which they were driven out, but in the year 1376. The word " Jugler " does not refer to juggling, but is Moryson's translation of the German " Gugler," which term was applied by the Swiss to the soldiers of Enguerrand de Coucy's army because of the pointed shape of their helmets. That noble was trying to redeem some of his mother's rights on property which had been Austrian but which was now in the hands of the Swiss. But although his father-in-law was King Edward III, he was hardly an Englishman, and the statement that the English had invaded Switzerland must be due to the presence of Britons temporarily unemployed in the Hundred Years' War in Coucy's army. But the date 1425 recorded by Fynes Moryson, remains inexplicable, as it was to him. (Cameron states that these invaders were largely Welsh freebooters under Evan Griffith ab Einion.)

The next of this series of English travellers to call for attention is Thomas Coryat. This eccentric person, who is described by Gribble as a privileged

buffoon at the Court of James I, rambled over Europe with one shirt and one pair of shoes, and recorded his adventures in a work with the following remarkable title : " *Coryat's Crudities hastily gobled up in five monèths Travells in France, Savoy, Italy,*

FIG. 16.—Thomas Coryat, from " Coryat's Crudities," London, 1611.

Rhetia, cōmonly called the Gryson's country ; Helvetia alias Switzerland, some parts of High Germany, and the Netherlands ; newly digested in the hungry air of Odcombe in the County of Somerset, and now dispersed to the nourishment of the Travelling Members of this Kingdomè."

In 1608, Coryat, or "The Odcombian Leggestretcher" as he styled himself, was returning from Venice. On August 21st he passed through Chiavenna, which "ministered some occasion of comfort" to him because it was the first Protestant town that he entered since he left Italy. An additional source of satisfaction was that his host refreshed his heartwith a cup of excellent wine. Then follows an interesting comment on the condition of the roads. "The ways are very offensive to foote travellers. For they are pitched with very sharp and rough stones that will very much punish and grate a man's feete." At Campodolcino, the clergyman, seeing that he was a solitary man and a stranger, cheered him with very comfortable words at his inn, and then he crossed the Splügen pass. While describing his journey thence to Thusis, he makes a remark the truth of which will be apparent to every modern visitor to the Alps. He says: "If anyone ask how many miles it is to any place, he (the local inhabitant) will not answere so many, but will tell you in so many howers you may be there. Which yieldeth a very uncertaine satisfaction to a traveller, because the speed of all is not alike in travelling; for some can travell farther in one hower

FIG. 17.—Coryat's Shoes, from "Coryat's Crudities," London, 1611.

than others in three." From Thusis he went through Chur and Wallenstadt to Zürich, and seems to have been favourably impressed by the Swiss inns, for he says, " the diet of Switzerland is passing good in most places, and the charge is something reasonable ; for my Spanish shilling did most commonly discharge my shot when I spent most." On the whole,

FIG. 18.—Coryat on his Journey, after " Coryat's Crudities," London, 1611, from Grand-Carteret.

Coryat seems to have thoroughly enjoyed the Alps, as the allusion to himself as " montiscandentissimus" shows. Perhaps it was the proximity of his home to Ham Hill which had inspired him with a delight in high places. On his return he is said to have hung up his famous pair of shoes in the church at Odcombe.

The next person to claim attention is John Evelyn, in whose Diary are recorded his adventures on a

journey from Milan to Geneva in 1646. His travelling companion was a Captain Wray, whose dog was claimed by its master to be a water-spaniel, but which Evelyn considered " a huge filthy cur." They left Milan precipitately lest they might become involved in some trouble which had recently occurred, and came to Domodossola on asses, which they there exchanged for mules. Thence they went to a village called Vedra, by which Evelyn must mean Iselle, for he says that it is the " last of the King of Spain's dominions in ye Dutchy of Milan," and Iselle is in the Val Divedro. At all events, they had " a very infamous wretched lodging."

Next morning they ascended the Simplon pass, being very depressed by the horrid and fearful crags. Near the top, Captain Wray's dog chased a herd of goats and killed one, for which they afterwards had much cause for regret. In the hospice they slept in cupboards so high from the floor that they had to climb into them by a ladder, and they did not appreciate the type of bedclothes with which they were provided. " We were covered with feathers, that is we lay between two ticks stuff'd with them, and all little enough to keepe one warme," for although it was then September there was plenty of snow.

The following morning was a Sunday, and they were preparing to ride off when they were assailed by a crowd of people who knocked them off their mules, disarmed them, and shut them up in a room with a

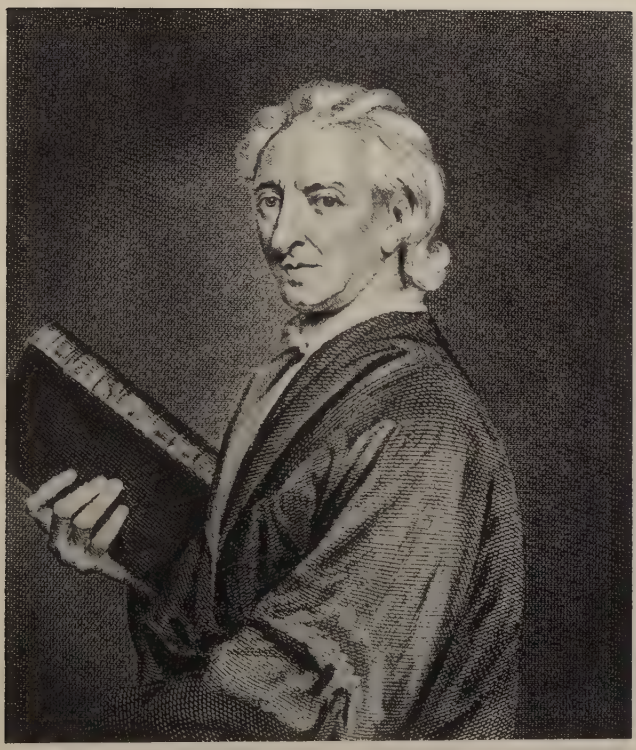

PLATE VIII.—John Evelyn, painted by Kneller, engraved by Bragge, from Evelyn's Memoirs, London, 1827.

[*To face page* 64.

guard over them until mass was over. After that they were brought before magistrates who condemned them to a fine of one pistole for the goat which the dog had killed, and ten pistoles for attempting to ride away. The magistrates further alleged that they had primed their carbines with intent to show fight (which in the case of Captain Wray was perfectly true), and that if they did not pay the fines at once they would be committed to prison until the next day of public justice. Evelyn and his companion therefore promptly laid down their money and were glad to get off as lightly as they did.

More trouble was in store for them when Captain Wray's horse, which carried all the luggage, slipped and fell such a distance that it was two miles before they got to the " poore beast." Captain Wray seems by this time to have been so upset that he was with difficulty restrained from shooting the poor animal as it descended. Eventually they were glad to get to Brig for the night, and still more glad next morning as they were riding down the Valais to have got out of the melancholy and troublesome mountains, to the comfortable inn at Sion, kept by a colonel. They were equally well entertained at Martigny, but the worst trouble of all was about to descend on Evelyn at Bouveret. Very tired and suffering from headache, he found the inn full, so he ordered one of the innkeeper's daughters to be removed from her bed, into which he immediately got himself. But the girl had been suffering from small-pox, and

Evelyn paid dearly for his impatience, for he was laid low with this disease as soon as he reached Geneva. Although he hated the Alps cordially, Evelyn's account of his journey is one of the most interesting because of the details which he gives concerning the amenities and hardships of this kind of travel.

About the year 1656, Sir John Reresby did the same journey as Fynes Moryson had done, but in the opposite direction, from Zürich to Edolo. Little need therefore be said about it, except that at Bergün the beds were so dirty that they preferred to sleep on benches, and that while crossing the Albula pass Mr. Berry (one of the party) had a narrow escape from disaster when his horse slipped and fell over the edge with its rider. Fortunately, their fall was stopped by a rock.

In the person of John Ray, the Alps received a visitor of greater note than is usually realised. He was a most distinguished naturalist, and the great Linnaeus himself was indebted to his work. Ray's journey led him by yet another line of approach to Switzerland. From Trento he went up the valley of the Adige, and on March 20th, 1665, he slept at Taufers, near the entrance to the Münstertal. Next day he crossed the frontier and stayed at Cierfs, at the foot of the Ofen pass, and he noticed that he had entered a Romanch-speaking country. This language he considered was more like Spanish than Italian, which remark has much to be said for it. His

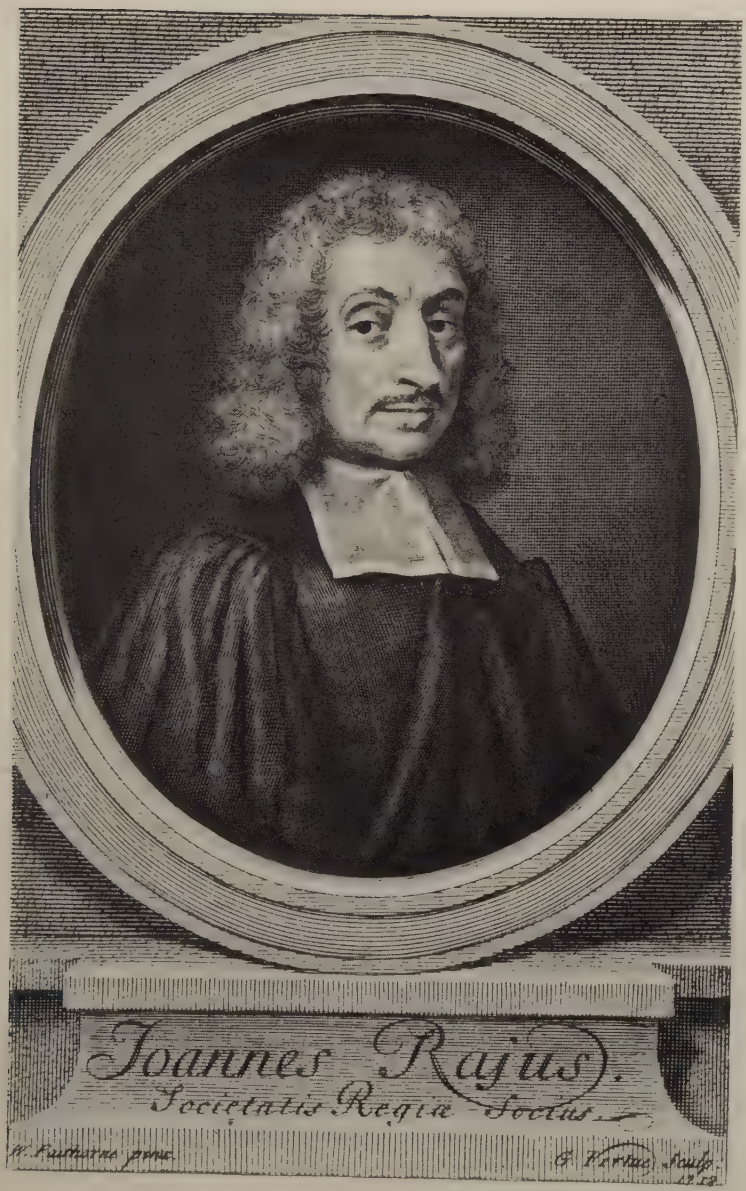

PLATE IX.—John Ray, painted by Faithorne, engraved by Vertue, from "Three Physico-Theological Discourses," London, 1713.

[*To face page* 66.

journey over the Ofen pass took him to Zernez in the Engadine, and turning up this valley, he arrived at Ponte where he stayed the night.

He does not seem to have known the name of the pass which he crossed on the following day (24th), for he says, " passed over a high mountain called ——." However, as the next place to which he came was Bergün, it was the Albula pass. It was snowing hard when he crossed it, and the snow even froze to his eyebrows.

Staying a few days in Chur, Ray next visited Glarus, where he noticed a peculiarity which persists up to the present day. That is, that the Catholics and the Protestants live on such very good terms that they share the same churches. The priest comes first to say mass, after which the minister comes to conduct his service.

From Glarus he went to Lachen, and over the Etzel to Einsiedeln. Thence he went to Schwyz, and visited Altdorf, Stans, and Lucerne, which he calls " a very neat city." The remainder of his tour was outside the alpine area, and need not be considered, except to notice his general opinion of the Swiss. He says that they are so honest that " one may travel their countrey with a bag of gold in his hand." Further, in the inns, " they would be troubled if we distrusted them so far as to take our portmanteau's into the lodging chambers and not leave them in the common dining-room." This seems to suggest that the traveller of those days was

not in the habit of unpacking his luggage when he arrived at his destination.

Gilbert Burnet, afterwards Bishop of Salisbury, undertook a journey through Switzerland in 1685. From France he came to Geneva, and passed through Lausanne and Berne to Zürich. There he satisfied one of his chief interests, which was to examine old manuscripts of the New Testament for light on certain passages. He also saw the silver cups presented to the Dean and Chapter of Zürich by Sands, Horn, and Jewel (all of whom afterwards became bishops), with inscriptions recording their gratitude for the kind reception given them during their exile from England under Queen Mary.

After a short stay, he left Zürich and came via Wallenstadt to Chur. There the cathedral is dedicated to St. Lucius, and there is also a chapel which bears his name. A remarkable legend was attached to St. Lucius, concerning which Tschudi gives full details. He was said to be a king of Britain who deserted his country to preach Christianity, and in the year 176 he entered the country of the Grisons from Bavaria, passing over the Luziensteig (between Vaduz in Liechtenstein, and Maienfeld), which bears his name. In Chur he preached, but his activities were cut short by the Roman governor, who executed him and burned his sister Eremita at the stake. Belief in this legend was strong when Burnet visited Chur, and, as he says : " when I offered to shew the good old bishop

FIG. 19.—Gilbert Burnet, Bishop of Salisbury, engraved by Garden, from the English Magazine, 1753.

(of Chur) that the legend of Lucius was a fable in all the parts of it, but most remarkably in that which related to the Grisons, . . . this signified nothing to the bishop, who assured me that they had a tradition of that in their church, and it was inserted in their breviary, which he firmly believed." The bishop even shewed Burnet a portion of what was supposed to be St. Eremita's veil, but it did not make much impression on Burnet, for he says: "I confess I never saw a relique so ill-disguised, for it is a piece of worn linnen cloath lately washt, and the burning did not seem to be above a month old."

Earlier in that same year (in April, 1685) a number of persons told Burnet that he might have seen a procession of five hundred people passing through the town. They were a remnant of the Waldenses, escaping from the clutches of the Archbishop of Salzburg to find liberty of conscience in Switzerland, as their co-religionists from Piedmont did.

From Chur, Burnet continued on his way to Thusis and through the Via Mala to the Splügen pass, the descent from which he says "for the most part is as steep as if we were all the while going down stairs." From Chiavenna he went to Como, and then paid a visit to the Swiss bailiwicks of Locarno, Lugano, and Bellinzona. The first two of these were subject to all the cantons except Appenzell, and they took it in turn to appoint a bailiff. But as the Protestant religion was proscribed in these bailiwicks (as the result of a treaty

Abbildung des Gletschers im Gründelwäldt in der Herschafft Bern.
Effigies montis glacigenæ in Grindelia Sylva Bernatica vulgo dicti
GLATSCHER
A. Das Eyss oder Glatscher ist vom Boden auff wachsat, und alles umbsich stost mit vngestühm und vnkem Krachen B. der staub Lutzinnen so vnder dem Eyss herfur quillet
C Wohnungen mit welchen man dem Gletscher hat weychen müssen. D Hochgeburge mit Ewigem Schnee bedeckt

FIG. 20.—View of Grindelwald, from Merian's "Topographia Helvetica," Frankfort, 1642.

whereby the right of the cantons to these territories was confirmed), an anomalous situation arose whenever it was the turn of a Protestant canton to appoint a bailiff. The result was that the highest person in the land might have to forego the liberty of his conscience.

Evidence of sweetness of temper on the part of the inhabitants of the Engadine was provided by an event which took place only eighteen years before Burnet's visit. Being Protestant, they had the unenviable reputation ascribed to them by their Catholic neighbours of being little less than savages to those who followed Rome. Friar Sfondrato, nephew to Pope Gregory XIV, had become " so much in love with the crown of martyrdom, that he went through the Engadine, not doubting that he would find there that which he desired." But the Engadiners did not oblige, although he took all possible steps for the purpose of provoking them, " but to all that they made no answer, only they continued their civilities still, which did so enrage the warm friar that he went to Bormio, and there (as was believed) he died of grief." Considering the bitterness which had raged in the Grisons during the earlier part of the seventeenth century, this trait is interesting.

Burnet enjoyed his journey through the Grisons. He says of its inhabitants that " they are extream civil to strangers, but it seems in all commonwealths innkeepers think they have a right to exact

upon strangers ! " Altogether, his experiences seem to have fired his son with a liking for the Alps. William Burnet, F.R.S., was at Zürich in the autumn of 1708 when he was seized with the desire to go and see the glaciers of Grindelwald, on which he communicated a letter to the Royal Society of London. An engraving of these glaciers had been published by Merian in 1642, and a description of them by Johannes von Muralt appeared in the Philosophical Transactions of the Royal Society for 1669, followed by a complementary description and a figure in the same Transactions for 1673–4. They had also been visited in 1690 by the English envoi, Thomas Coxe and his wife, as Schirmer relates. Their travelling suite included a train of thirty horses, and the governor of Interlaken incurred expenses amounting to 120 crowns in entertaining the party. William Burnet described some of the ice pinnacles as higher than the dome of St. Paul's, and advanced a theory to account for the crevasses. These he regarded as due to the freezing of water under the glacier, which water naturally expanded as it froze, lifting and dislocating the overlying ice which became cracked and fissured. The explanation is not correct, but it is interesting, for the expansive action of freezing water was afterwards appealed to by a number of glacierologists.

The last person to be dealt with in this chapter is Joseph Addison. He did not confine his walking to Magdalen College, but after a tour in Italy, came

to Geneva (*via* the Mont Cenis) about the year 1702, where he drew attention to the curious fact that all of the five states which bordered on the lake had different constitutions. They were, the Kingdom of France, Duchy of Savoy, Canton of Berne, Bishopric of Sion (the Valais), and Republic of Geneva.

While Addison's tour in Switzerland cannot be said to have been alpine, a number of his remarks are of considerable interest from the present point of view. One of these conveys an indication that mountains were ceasing to produce on travellers that sensation of loathing which Evelyn felt so strongly. "The Alps, which are broken into so many steeps and precipices, that they fill the mind with an agreeable kind of horror," is Addison's opinion. In Lausanne, he draws attention to the fact that "there is one street of this town that has the privilege of acquitting or condemning any person of their own body, in matters of life and death. Every inhabitant of it has his vote, which makes a house here sell better than in any other part of the town." As Coxe remarked later, this system approximated to trial by jury, with a permanent panel of jurors selected from the class of householders.

In Fribourg, Addison was very interested in the *escargatoire* in which the Capucin monks secured a steady supply of fine snails for Lenten consumption. After visiting Berne, he saw on the road to Solothurn a monument with an inscription commemorating

the same event as that which had been such a puzzle to Fynes Moryson : " One Cussinus, an Englishman, to whom the Duke of Austria had given his sister in marriage, came to take her from the Swiss by force of arms ; but after having ravaged the country for some time, he was overthrown by the canton of Berne." Cussinus is, of course, Enguerrand de Coucy.

On the way to Zürich, Addison passed through the little town of Mellingen. This diminutive state had a Great Council of fourteen members, a Little Council of ten, a Privy Council of three, and two Avoyers. " The several councils meet every Thursday upon Affairs of State, such as the reparation of a trough, the mending of a pavement, or any the like matters of importance." It must have caused no little commotion when in 1635, Duke Henry de Rohan proposed leading part of his army through Mellingen.

CHAPTER VII

A GREAT ALPINE TOURIST

WHILE the number of men who had toured the Alps by the beginning of the eighteenth century was already considerable, none of them had as it were made a profession of this occupation until Johann Jacob Scheuchzer, of Zürich. Scheuchzer was stimulated to travel through and through the Alps partly to satisfy his curiosity concerning their natural history, and partly under encouragement and support from the authorities of Zürich. In all he made nine extensive journeys, which were eventually described in his *Itinera Alpina*, dedicated to the Royal Society of London, of which he was a Fellow. This work was profusely illustrated, some of the plates being made at the expense of persons such as Sir Isaac Newton, Sir Hans Sloane, and Dean Aldrich. As a scientist, the value of Scheuchzer's work was uneven. He was an enthusiastic botanist and mineralogist, but his scientific achievements need not be much considered in these pages, except to mention his remarkable views on dragons.

Scheuchzer undertook his first journey in 1702, leaving Zürich in company with his brother Johann

PLATE X.—Johann Jacob Scheuchzer, painted by Melchior Füssli, engraved by Jos. Nutting, from Scheuchzer's "Itinera Alpina," Leyden, 1723.

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FIG. 21.—Diagram explaining the intermittent spring on the Engstlenalp, from Scheuchzer's "Natur-Historie des Schweizerlandes," Zürich, 1752.

A, B, is the source of water; C, D, is the reservoir; H, I, is the reflexed siphon, from which the spring flows intermittently at K.

on August 4th, and travelling over the lake to Lachen, whence they ascended the Klein Auberg. Here, Scheuchzer at once set up his barometer, for wherever he went his first attention was to measure the height of the column of mercury. At the same time he had made arrangements whereby some one in Zürich also observed the barometer at stated times every day during his absence, so that he was able to discount the variations due to weather changes and thus arrive at an approximation of the elevation above the level of the lake of Zürich of all the places which he visited. Having performed this operation on the Klein Auberg, they descended to Einsiedeln where they stayed the night.

The following day saw them cross the Haggenegg close to the Mythen and proceed through Schwyz to Brunnen, where they embarked for Flüelen, whence they reached Altdorf. From here they went up the Waldnachttal to the Surenen pass, across which they reached Engelberg. Scheuchzer's arrival at Engelberg was most opportune, for the fathers and brothers at the monastery were suffering from attacks of cramp, colic, and fever, and he was able to bring his medical skill to their assistance. He traced the trouble to the bad condition of the kitchen pots, which were of iron and of copper, but long-continued use had worn off their layer of tin. Milk and butter had been kept in them, and they had been used for cooking, which would easily account for the sickness of the inmates of the monastery.

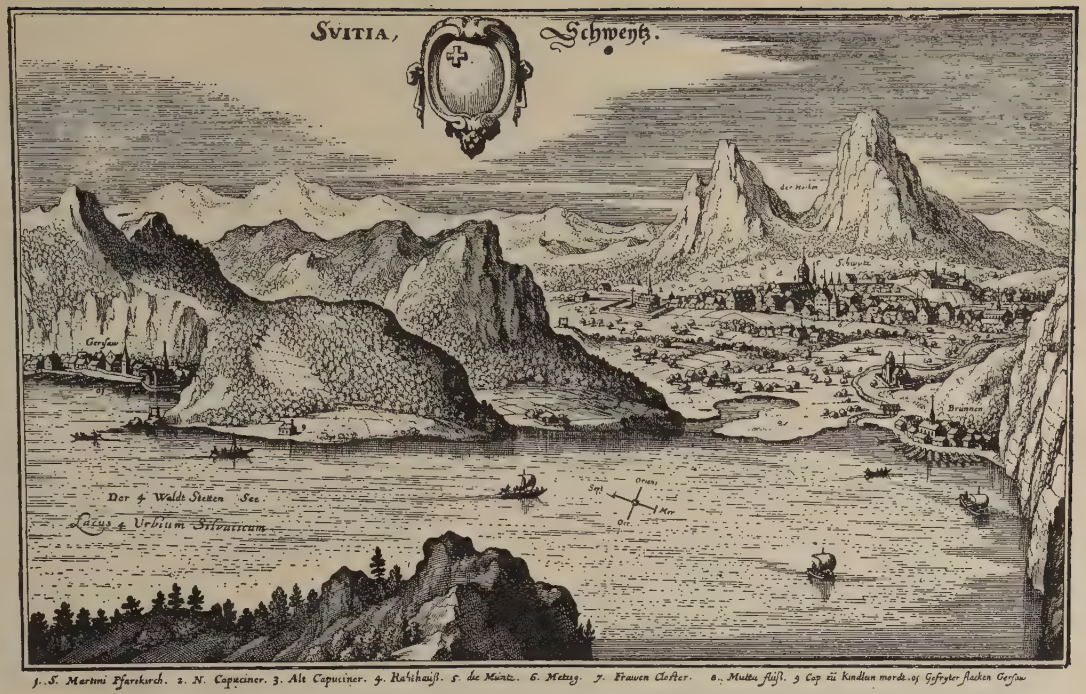
SVITIA, Schweytz.
Der 4 Walds Stetten See.
Lacus 4 Urbium Sylvaticum
Gersau
Brunnen
Schwytz
der Hacken
Oriens
Occ
Sept
Mer
1. S. Martini Pfarrkirch. 2. N. Capuciner. 3. Alt Capuciner. 4. Rathhauß. 5. die Müntz. 6. Metzg. 7. Frauen Closter. 8. Mutta flüß. 9 Cop üü Kindlun mordt. 05 Gefryster Flacken Gersau

FIG. 22.—View of Schwyz, from Merian's "Topographia Helvetica," Frankfort, 1642.

After a week's stay, Scheuchzer and his brother crossed the Joch pass to Engstlenalp, on August 18th, but it was too late in the year to see the flow of the marvellous spring of which Stumpf gave a description. Scheuchzer frankly disbelieved the stories of the regulation of its flow given by that author, and, as will be seen in his fifth journey, describes an ingenious hydrostatic theory to account for its peculiarities. The narrative of the first journey then stops abruptly, merely mentioning that on the return they ascended Pilatus.

The second journey (in 1703) was a much bigger affair. Leaving Zürich on August 9th again for Lachen, he rode to Weesen on the Walensee, and on to Pfäfers, the baths of which he inspected. Then, instead of returning to Ragaz, he went on up the Tamina, past Vättis, and over the Kunkels pass to Reichenau. If Scheuchzer had only lived a couple of centuries later, he would have known something about the Kunkels pass which would have delighted his heart. For, in times which geologically speaking are comparatively recent, there were two Rhines. The western Rhine arose from the present source of the Hinterrhein, flowed through the Via Mala and Domleschg to Reichenau, but there, instead of turning to the east to Chur, it went straight on through the Kunkels pass to Sargans and the Walensee. The height of the pass over the present level of the Rhine valley shows how much the river has deepened its bed since it ceased to flow through the pass.

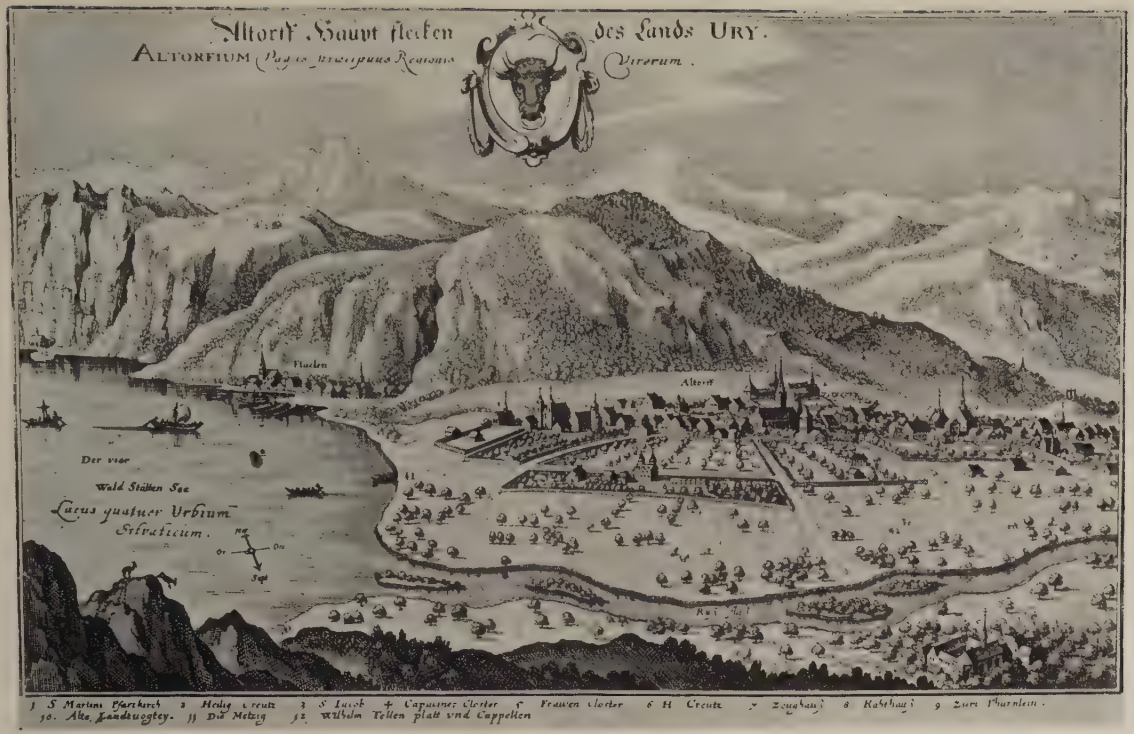
Altorff Haupt flecken des Lands URY.
ALTORFIUM Pagus principuus Regionis Uranorum.
Flueln
Altorff
Der vier
Wald Stätten See
Lacus quatuor Urbium
Sfracticum.
1 S Martins Pfarkirch 2 Heilig Creutz 3 S Lucob 4 Capuziner Clorter 5 Frauwen Clorter 6 H Creutz 7 Zeughaus 8 Rahthaus 9 Zum Thurnlein.
10. Alte Landtvogtey. 11 Die Metzig 12 Wilhelm Tellen platt vnd Cappellen

PLATE XI.—View of Altdorf, from Merian's "Topographia Helvetica," Frankfort, 1642.

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From Reichenau, Scheuchzer went through the Domleschg to Thusis and through the Via Mala to the Splügen pass, on the top of which was an inn provided with a bell, which, rung in winter, served the purpose of a fog-horn. Then he dropped down to Chiavenna, and, accompanied by Signor Paravicinus de Paravicini, visited the site of the town of Plurs, which had been completely overwhelmed by a landslide in 1618. Now making his way up the Val Bregaglia, he came to Soglio. The inhabitants of this town had hit upon an ingenious and economical method of knowing the time, for they used the peaks of the range of mountains to the south of them to gauge the position of the sun and so know the time of day by a sort of natural sundial. For this reason the peaks in question bore such names as Piz delle Nuove, Piz delle Dieci.

Continuing up the valley through Bondo and Casaccia, he ascended the Maloja pass, and then took the path over the Fuorcla di Lunghino to visit the top of the Septimer pass. Thence he returned to the Engadine and passed the lakes of Sils and Silvaplana to St. Moritz, where he visited the baths. Turning back to Campfer (the name of which, Campo di Ferro, is supposed to allude to the remarkable hardness of the ground "which could scarcely be dug with any instruments"), he approached the Julier pass, where he was disappointed not to find on the Roman columns the inscriptions, "Hucusque non ultra" and "Omitto Rhetos

indomitos," which previous authors had reported. Descending from the pass to Bivio and through the valley of Oberhalbstein, he reached Tiefen-

FIG. 23.—The Roman columns on the Julier pass, from Scheuchzer's "Natur-Historie des Schweizerlandes," Zürich, 1752.

castel. Here he turned to the left, and reached Fürstenau through the "vexatious" defile of the Schyn pass. Modern travellers probably do not

recognise the Schyn as a pass at all, but it possesses the same interest as the Kunkels, and for the same reason. The Eastern Rhine used to rise in the Oberhalbstein and flow straight on past Tiefencastel over the Parpan pass to Chur, and over the Luziensteig to the present valley leading to the lake of Constance. Through the erosion of the Schyn pass, this eastern Rhine was tapped by its western neighbour, so that it no longer flowed over the Parpan pass; just as at Reichenau the western Rhine was tapped by the eastern and was so deflected from its former course over the Kunkels, to Chur.

In Fürstenau, Scheuchzer called on Baroness von Schauenstein, who showed him a cheese which had for years been treated with wine and oil of cloves until it had become a porridge, "which for connoiseurs of such foods has a particularly delicious taste." At Flims, in the valley of the Rhine, Scheuchzer paid another visit, this time to Sir Gaudentio de Capel, who had been knighted by King William of England, of glorious memory. From Flims Scheuchzer crossed the Segnes pass, which he found very precipitous, and remarks that persons addicted to giddiness are led round by another way. Near the top he observed the Martin's Loch, or hole in the rock through which twice a year the sun shines on the village of Elm. From there it was a simple journey down the Sernftal through Glarus to Weesen and so back to Zürich.

The third journey, in 1704, was only a minor

affair, for Scheuchzer had been troubled with a skin complaint, for which reason he spent part of the summer at the baths of Pfäfers. But the fourth journey, in 1705, was again in the grand style. It

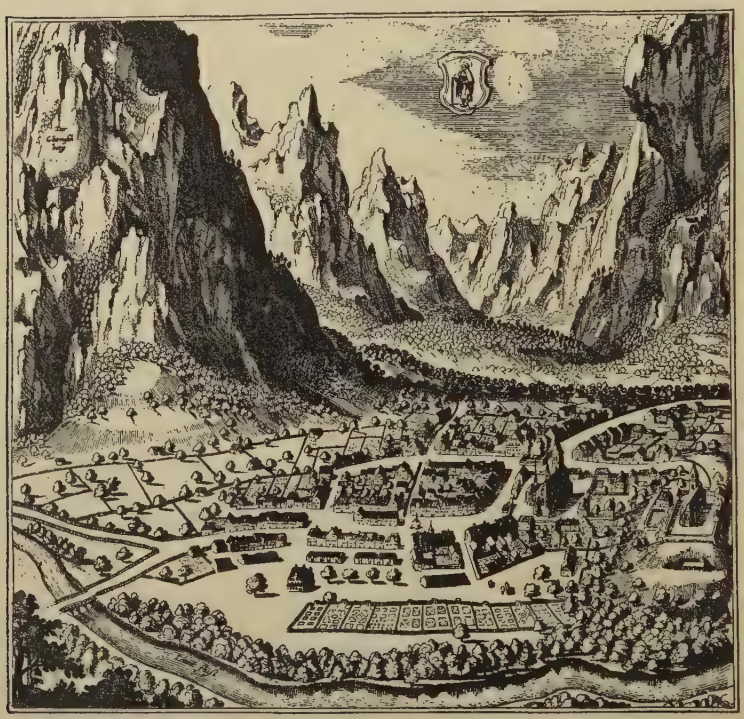

FIG. 24.—View of Glarus, from Merian's "Topographia Helvetica," Frankfort, 1642.

began on July 30th with his usual move from Zürich to Lachen, whence he rode to Glarus. Then from Schwanden he turned up the Grosstal (or valley of the Linth) to the town of Linthal. A short distance from there he came to the Panten-

PLATE XII.—View of Lucerne, from Merian's "Topographia Helvetica," Frankfort, 1642.

[*To face page* 84.

brücke, and he mentions the Kisten and the Sandalp passes (though not by name) leading over to the valley of the Rhine. Neither of these, however, did he take, but went over the Altenoren alp to sleep in a hay-hut, on the Bärenboden. There he philosophises upon the good fortune that Switzerland is not one single mountain, but several mountains separated by valleys ; for the mountains keep off the cold winds and enable fruit and corn to ripen and man to live in the valleys, " just as, in the British Isles, the fruitfulness of gardens is markedly increased by high walls which keep back the salt sea-air." This invocation of final causes in geography is interesting and not without parallel, for Leslie Stephen has drawn attention to the old argument that mountains are useful in sending rivers down to the sea, and in providing crystals, pastures for cattle, and preserves for fur-bearing animals.

From the Bärenboden, Scheuchzer crossed the Fisiten pass to Gemsfayer, and then the Klausen pass to Unterschächen. The following day took him to Altdorf, whence he rode up the valley of the Reuss, taking a careful survey with a compass in order to make his map. After crossing the Devil's bridge, he was obliged to enter the Urserental by the old way, along boards slung against the side of the rock overhanging the Reuss, for the tunnel of the Urnerloch had not yet been pierced. His visit to the top of the St. Gotthard pass is the occasion for a long disquisition on crystals.

Descending from the St. Gotthard, he reached Airolo, and immediately started off to ascend the Fongio, passing through Valle and Madrano. After enjoying the wonderful view from Fongio he dropped down to the Lago di Ritom at Piora and went over the Passo dell' Uomo to the hospice Sta. Maria on the top of the Lukmanier pass. As may well be imagined, he arrived there with weary limbs. Next morning he descended the Val Medel (or valley of the middle Rhine), but not as far as Disentis, for at Curaglia he crossed the river to get to Mutschnengia, whence a path took him to Sedrun. A feature which attracted Scheuchzer's attention, as it does that of the visitor to this Val Tavetsch at the present day, was the racks erected in the open air on which the inhabitants hang the corn until it is threshed.

TAB. XII.
Sources du RHONE dans le Mont de la FOURCHE
1.2.3.4.5.6. La grande GLACIERE.
7.8.La petite GLACIERE. 9.10.11. La vraye Source.
12.13.La Fausse Source. 14. Mont Furca.

FIG. 25.—The Glacier of the Rhone, from Scheuchzer's "Itinera Alpina," Leyden, 1723.

PLATE XIIIA.—The Dragon seen in 1660 by D. Andreas Rodunerus, in Sargans, from Scheuchzer's "Itinera Alpina," Leyden, 1723.

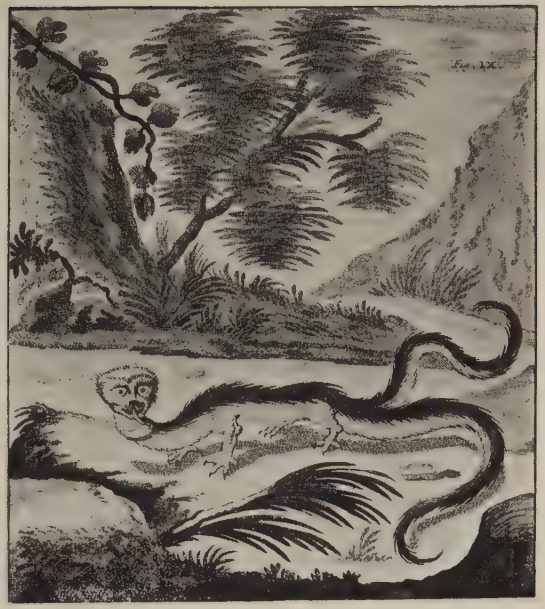

PLATE XIIIB.—The Dragon seen in 1696 by Bartholomeo Alegro de Ponte, from Scheuchzer's "Itinera Alpina," Leyden, 1723.

[*To face page* 86.

The way now lay over the Oberalp pass back into the Urserental to Hospenthal, and, next day, over the snow-covered Furka pass to the Rhone glacier. A propos of this, Scheuchzer gives his views on glaciers in general, and propounds his theory of their motion, by invoking the expansive action of water freezing in the crevasses. This view, which was also that adopted by William Burnet to explain the formation of crevasses, was afterwards developed by Charpentier and Agassiz, but was finally disproved when Forbes showed that heat accelerates, whereas cold retards glacier-movement, and that, as a matter of fact, the water in the crevasses (at any rate during the summer) does not freeze at all.

From Obergestelen, Scheuchzer followed in the tracks of his predecessor Stumpf, down the Valais. At Glis near Brig, he saw the memorial to Georg auf der Flüe, the hero of the Italian wars in the sixteenth century, who had twelve sons and eleven daughters. This fecundity of Margaret auf der Flüe may possibly account for the frequency of the identical name Supersaxo in this neighbourhood at the present day. The high intellectual standard of the Vallaisans impressed Scheuchzer, for he says that the most lowly people, even day-wage earners, speak German, French, Italian and Latin fluently.

After passing an old wall with ruins of towers, extending from the mountains to the Rhone, between Glis and Visp, Scheuchzer reached Leukerbad. There he remarks plaintively that " we have already

climbed sufficient mountains, but we must get over one to-day which will give us enough to do," referring to the Gemmi pass, the name of which

FIG. 26.—The Dragon-stone of Lucerne, and the Dragon in the act of dropping it on its flight from the Rigi to Mount Pilatus; from Scheuchzer's "Natur-Geschichte des Schweizerlandes," Zürich, 1746.

he derives from the sighs (gemitus) of those who cross it. Passing through Kandersteg, he reached the lake of Thun and mentions the project then on

foot of diverting the river Kander from its old course (flowing into the Aar below Thun), into the lake of Thun. The floods which this river caused were responsible for this agitation, but the inhabitants of the shores of the lake were apprehensive of the effects of such a diversion. As Scheuchzer remarks, a few mathematical calculations would soon show what its effects would be.

After a visit to Berne, Scheuchzer returned to Zürich on August 24th, having certainly not wasted his three weeks and four days.

The description of the fifth journey (1706) is the most remarkable of all. Leaving Zürich on June 17th, this time for Horgen, he soon arrived at Zug. Crossing the Zugersee to Immensee, he made use of the lake of Lucerne from Küssnacht to Lucerne, and thus arrived in the canton in which dragons were held to be most plentiful. After a description of a dragon-stone in the museum at Lucerne, which stone had miraculous healing properties, and had been dropped by a dragon flying from the Rigi to Pilatus, Scheuchzer proceeds to give a reasoned catalogue of Swiss dragons, arranged according to cantons.

In canton Zürich, Hans Tinner, an " honourable and trustworthy man," saw a dragon which had the body of a snake and a head like that of a cat. Another example was seen by Hans Büeler, a member of the Consistorium, but it had four short legs and a comb like that of a cock. A specimen somewhat

similar was observed by Caspar Gilg. In canton Lucerne, Christoph Schorer saw an object like a snake, but with the wings of a bat, leave a cavern high up on Pilatus, and fly across the sky emitting sparks as it went. But the best dragon of all was provided by the Grisons. " That land is so mountainous and well provided with caves, that it would be odd not to find dragons there." Bartolome Alegro, who observed the champion, described it as two feet long, with a red hairy cat's head, sparkling eyes, scaly legs, a tongue like a snake's, and a long hairy bifid tail.

These descriptions are curious enough, but still more remarkable is the position which Scheuchzer takes up in regard to them, for although he admits that some dragons are pure fables, he " nevertheless holds from the accounts of Swiss dragons and their comparison with those of other lands, that it is clear that such animals really do exist."

After this excursion into the comparative anatomy of dragons, Scheuchzer describes his ascent of Pilatus, " yet not to the summit, which partly through lack of time and partly through tiredness, we did not ascend." His journey next lay through Engelberg and over the Joch pass again to see the spring on the Engstlenalp, but unfortunately this year he was too early. However, he describes the theory which his friend Johann Jacob Hermann, professor of mathematics at Frankfurt an der Oder,

PLATE XIVA.—The Dragon seen flying from Mount Pilatus in 1649 by Christoph Schorer, from Scheuchzer's "Itinera Alpina," Leyden, 1723.

PLATE XIVB.—The Dragon seen by Johannes Egerter, "vir honestus et septuagenarius," from Scheuchzer's "Itinera Alpina," Leyden, 1723.

[*To face page* 90.

had propounded to account for the intermittent and periodic flow of the spring. He imagined that the heat of the summer sun melted a quantity of snow, the water from which collected in a subterranean chamber with a reflexed siphon, of which the lower outer end was the spring. When the level of the water in the chamber rose above the elbow of the siphon, the whole chamber emptied itself. (See Fig. 21, p. 77.)

Scheuchzer mentions the word "Sust," but without any indication that it is a pass. The remainder of this journey, across the lakes of Brienz and Thun to Berne and Neuchâtel, and back on July 3rd to Zürich via Bienne and Solothurn, is strictly out of the province of the Alps.

On his sixth journey, in 1707, Scheuchzer revisited the south-eastern parts of Switzerland. Leaving Zürich on July 15th by his usual route over the lake to Lachen, he came to Pfäfers, where he stayed over a week to take the cure. Then, instead of going over the Kunkels, this time he returned to Ragaz to get to Chur. And after traversing the Via Mala from Thusis to Splügen, he visited the source of the Hinterrhein, and crossed the St. Bernardin pass. This pass leads into the Val Mesocco, and eventually to Bellinzona, but Scheuchzer soon turned off to the east, over the Passo della Forcola, to Chiavenna, where he stayed with M. de Salis. Thence he repeated his journey up the Val Bregaglia and over the Maloja pass into

the Engadine. But this time he went past St. Moritz, through Celerina and Samaden to Ponte, at the foot of the Albula pass. This he crossed in a thunderstorm to Bergün and Filisur, returning to Chur by Lenz and the Parpan pass, and reaching Zürich on August 10th.

Scheuchzer made no journey in 1708, but started on his seventh on June 25th, 1709. This tour might almost be described as a portage between lakes, for he made remarkably good use of water travel. A short sail over the lake of Zürich brought him to Horgen, and another on the lake of Zug from Zug to Immensee. Then from Küssnacht, he sailed to Stansstad on the lake of Lucerne. The next lakes were those of Sarnen and of Lungern, across which he reached the Brünig pass. The lake of Brienz took him to Unterseen (Interlaken) on his way to Grindelwald. There he noticed the hole in the Eiger, similar to the Martinsloch on the Segnes pass, and was much impressed by the amount which the lower glacier had advanced, for the chapel to St. Petronella with the houses surrounding it had completely disappeared beneath the ice. The memory of the chapel is still preserved in the Nellenbalm.

Returning to Unterseen, Scheuchzer had yet another lake trip on that of Thun as far as Faulensee. From there he went up the Kandertal and down over the Gemmi pass to the Valais at Leukerbad. This time, he completed his tour of the Valais (which

PLATE XV.—View of Engelberg, from Merian's "Topographia Helvetica, Frankfort, 1642.

[*To face page* 92.

in 1705 he had visited from the Furka as far as here), by turning to the west to Sion and Martigny. He complains bitterly that the Roman inscription which Simler had described as being at Martigny was no longer to be seen, and attributes its loss to the rebuilding of the church and the carelessness of the priest. (Ruchat's "*Délices de la Suisse*," published in 1714, says that it is still visible!). Then at Villeneuve, he could not resist a sail on the lake of Geneva to Vevey, during the course of which he had a narrow escape from shipwreck in a storm. That did not deter him, however, from sailing on the lake of Neuchâtel and up the Broye (which acts as a canal), across that of Morat, on his return to Zürich, which he reached on July 18th, after another very well spent three weeks.

The eighth journey only occupied a fortnight, but as usual it was well filled. On September 9th he left Zürich and soon arrived at Glarus, with the object of visiting the Freiberge, or nature preserve, which he had passed on two previous occasions. This was a preserve for chamois and other animals, established in 1569, looked after by twelve keepers, whose duty it was to provide two animals for each man of the canton, rich or poor, when he married, the keeper getting the skins. From Schwanden, Scheuchzer went up the Niederenbach to Ratzmatt, where he spent a miserable night. Thence, going over the Bleitstock he reached Elm in the Sernftal, and returned to Glarus.

His way now lay through Sargans, and down the valley of the Rhine to Altstätten. From there he climbed out of the valley to Trogen, and past Vögelinseck (the scene of the victory of the Appenzellers over the Abbot of St. Gall in 1403), to St. Gall. His object was to visit the Toggenburg and the country between the ranges of the Curfirsten and the Säntis. This took him from Herisau to Schwarzenbach, and up the valley of the Thur as far as Alt St. Johann (the birthplace of Zwingli), and back over a spur of the Hörnli to Zürich on September 23rd.

The ninth and last journey (1711) was not strictly alpine at all, but its chief interest lies in that when he crossed the lake of Thun on May 30th, the decision had been taken to divert the Kander and so prevent its floods. Before the last ice age, the Kander had flowed straight into the lake, but the left lateral moraine of the glacier of the Aar, formed during this glaciation, made an obstacle which deflected the river to the west, so that it only joined the Aar below Thun. The plan of the architect, Samuel Jenner, was to pierce a tunnel through this lateral moraine, near Strättligen, to take off the Kander's flood waters. Over 200 men were employed, marching to and from the work to the sound of drums and fifes. It was finished in 1714, a condemned criminal performing the last perforation, according to Wyss. But as the tunnel was twelve times shorter and therefore steeper than the old

FIG. 27.—View of Thun, from Merian's " Topographia Helvetica," Frankfort, 1642.

course of the Kander, the tunnel captured the whole river. The roof then fell in, and the tunnel became the gorge which it is to-day. Then it was necessary to divert a small stream along the original course of the Kander to supply the water-meadows and drive the mills.

This experiment in river-correction, which was one of the earliest of its kind in recent times (though precedence must be given to Cyrus, and to the nuns of Interlaken who diverted the Lütschine into the lake of Brienz), has been of the greatest value for scientific purposes. For the Kander has formed a delta in the lake of Thun, and as its volume can be measured, and it is definitely known that it started in 1714, it is possible to compute accurately the rate at which erosion by the river is taking place. Further, it is possible to watch the way in which the river deepens its bed and cuts it back up-stream, whither it has already progressed a distance of ten kilometers.

In 1712, the second Villmerger war was raging, and Scheuchzer could hardly have travelled if he had wanted to, which is unlikely, for already in 1707 it began to be impressed upon him that his constant journeyings, besides being hard work and expensive, were detrimental to his domestic occupations and his medical practice. Before taking leave of him, one last account of his doings must be mentioned. In 1723, he received a fossil from the quarries of Oehningen, near Stein am Rhein. It

is to his great credit that he recognised fossils as whilom animals, and not as insignificant accidents or freaks of nature. This particular fossil had a skull, limbs, and a vertebral column, and so, this specimen " found in the year 4032 after the Flood " he named Homo diluvii testis. Later it became known as Andrias scheuchzeri, and although Cuvier afterwards showed that it was really only a giant newt similar to those which are now found in Japan and North America, it was nevertheless a great achievement on Scheuchzer's part to be misled by the similarity between Man and another vertebrate animal.

APPENDIX

While on the subject of dragons, it is interesting to note that dragon-stones have a greater degree of objective reality than dragons. These stones are doubtless related to the " jewel in the toad's head," alluded to by Shakespeare. The recipe for obtaining a dragon-stone, given by Sotacus and quoted by Scheuchzer, is to drive to the haunts of the dragon in a carriage and pair, strew soporific substances about, and then cut the dragon's head from its living body to obtain the stone. Under the circumstances, it is fortunate that the treasure of Lucerne was dropped by a passing dragon. But the nature of the toad-stone, at any rate, has been elucidated by Sir Ray Lankester, who showed that it is the tooth of the fossil fish Lepidotus, common in rocks of Jurassic age. The dragon-stone of Lucerne, now visible in the Naturhistorisches Museum of that town, is a water-worn stone, roughly spherical, about $2\frac{1}{2}$ inches in diameter, and with markings apparently painted upon it.

CHAPTER VIII

A FAMOUS ALPINE EXPEDITION

WHILE the glaciers of Grindelwald had already attracted considerable attention in the seventeenth century, it was the middle of the eighteenth before particular notice was taken of those of Chamonix. It is true that in 1669 Chamonix was visited by Le Pays, who refers to the place as a " pais affreux," and in 1727 by a Prince of Sulzbach. But the honour of discovering Chamonix as a goal for tourists falls to a group of Englishmen, who, in 1741, were staying at Geneva. They were : Richard Pococke, lately returned from travels in the east, and afterwards Bishop of Ossory and of Meath ; William Windham, father of Pitt's statesman-colleague ; his tutor, the naturalist Benjamin Stillingfleet ; Lord Haddington and his brother, Mr. Baillie ; Mr. Aldworth Neville ; Mr. Chetwynd ; and Robert Price. Windham was the leader, and wrote an account of the journey, which appeared in 1744 in the following pamphlet :—

An account of the Glacieres or Ice Alps in Savoy, in two letters, one from an English gentleman to his friend at Geneva ; the other from Peter Martel,

Engineer, to the said English gentleman. The English gentleman was, of course, Windham, and Forbes states that his friend at Geneva was the miniature painter, M. Arlaud, a friend of Sir Isaac Newton. Owing to the rarity of this pamphlet, and the difficulty of improving on Windham's own account of this memorable and epoch-making voyage, it is here reproduced.

" Sir,—

According to your desire I send you an account of our journey to the *glacieres*. I shall give it you in the plainest manner, without endeavouring to embellish it by any florid descriptions, although the beauty and variety of the situations and prospects that we observed in this unfrequented part of the world, would well deserve to be described by one, who, like you, join to so great a skill in painting so lively and poetical an imagination ; but these not being my talents, I will, as I said before, confine myself to the giving you a faithful relation of the incidents of our journey, and acquainting you with the observations we made. I shall add a few hints, which may be useful to such as shall hereafter have the same curiosity as we had, and who may perhaps have advantages and conveniences which we had not, to make more accurate observations. It is really pity that so great a curiosity, and which lies so near you, should be so little known ; for though *Scheuchzer*, in his *Iter Alpinum*, describes the

glacieres that are in the canton of *Berne*, yet they seem to me by his description to be very different from those of Savoy.

I had long had a great desire to make this excur-

FIG. 28.—William Windham, painted by Shackleton, engraved by Basire, from Grand-Carteret.

sion, but the difficulty of getting company had made me defer it; luckily in the month of *June* last, Dr. Pococke arrived at *Geneva* from his voyages into the *Levant* and *Egypt*, which countries he had visited with great exactness. I mentioned to him

this curiosity, and my desire to see it, and he who was far from fearing hardships, expressing a like inclination, we immediately agreed to go there; when some others of our friends found a party was made, they likewise came into it, and I was commissioned to provide what was necessary for our setting out.

As we were assured on all hands, that we should scarcely find any of the necessaries of life in those parts, we took with us sumpter horses, loaded with provisions, and a tent, which was of some use to us, though the terrible description people had given us of the country was much exaggerated. I had provided several mathematical instruments to take heights, and make observations with, hoping that Mr. *Williamson*, an able mathematician, governor to Lord *Hadington*, would have been of the party; but he declining it, on account of the fatigue which he fear'd he should not be able to support, I chose not to take the trouble of carrying them, there being no person in the company so capable as he of making a proper use of them.

We set out from *Geneva* the 19th of *June*, N.S. We were eight in company, besides five servants, all of us well arm'd, and our baggage-horses attending us, so that we had very much the air of a caravan. The first day we went no further than *Bonneville*, a town about four leagues distant from *Geneva*, according to the way of reckoning there; these four leagues took us more than six hours riding.

This place is situated at the foot of the *Maule*, and close by the river *Arve ;* t'is surrounded with beautiful meadows and high mountains, covered with trees, which form all together a very delightful situation. There is a very good stone bridge near the town, but it had suffered in the late inundation of the *Arve*, which had carried away part of it. Our inn was a tolerable one for Savoy as to every thing but beds.

The next day being the 20th, we set out very early in the morning, and passed the *Arve* ; our road lay between that river and the mountains, all along it we were entertained with an agreeable variety of fine landskips. They reckon two leagues from *Bonneville* to *Cluse*, but we were three hours and a half in going it.

Cluse is situated in a narrow pass between the mountains, which almost meet in this place (leaving only room for the *Arve*, which is thus hemm'd in for above a league together). Before you come to *Cluse* there is a kind of hermitage, upon a rock on the right hand, where we climb'd up in order to enjoy the prospect, which is *delicious ;* after that we passed the *Arve* over a fine stone bridge, of one very large arch, and continued our journey for about an hour and a half through a narrow road, along the *Arve*, between rocks of a prodigious height, which look'd as if they had been split on purpose to give the river a passage. Not to mention the beauties of the views all along, we were extremely

entertained by continual echoes, and the prodigious rattling, caused by cracking a whip, or firing a pistol, which we repeated several times. We saw cascades on every side, which fell from the top of high rocks into the *Arve*. There is one among the rest of singular beauty, it is called the *Nan d'Arpena*, t'is a great torrent, which falls from a very high rock ; all the company agreed it must be higher than *Saleve*. As for my part, I will not pretend to decide about it, I however may venture to say, that the cascade of *Terni* does not fall from near so great a height ; but then the quantity of water, when we saw it, was much less than at this last mentioned place ; tho' the people of the country assured us, that at certain times the water is much more abundant than it was then.

After about three hours riding from *Cluse*, we came to Saint *Martin's* bridge, right against *Salanches*, which is on the other side of the *Arve*. We did not care to go out of our way into the town ; but chose rather to encamp in a fine meadow near the bridge, in order to refresh ourselves.

(Here, Peyer interpolates an account according to which, while the servants were preparing the mid-day meal, Pococke put on the oriental dress which he had worn when in the east. Thus attired, he was accompanied with great pomp to the tent in front of which two servants mounted guard with drawn swords. Among the inhabitants the news spread like wildfire that an eastern potentate had arrived, and the various comments on the supposed orientals amused the latter not a little.)

From thence we set out again on our journey, and after four hours riding through very bad ways, being obliged to cross some dangerous torrents, we arrived at a little village called *Servoz*. Our horses suffered here very much, being tied to pickets all night in the open air for want of stabling ; besides there was neither oats, nor any other forrage, but grass fresh cut ; as for ourselves, as we had brought all necessaries along with us, we were well enough off, except as to beds, and that want was supplied by clean straw in a barn.

From thence we set forward at break of day, and passed the *Arve* once more over a very bad wooden bridge, and after having clim'd over a steep mountain, where we had no small difficulty with our horses, their shoes coming off continually, and they often running the risque of tumbling into the *Arve*, which run at the bottom of the rock, we came into a pleasant valley, where we pass'd the *Arve* a fourth time over a stone bridge, and then first had a view of the *glacieres*. We continued our journey on to *Chamouny*, which is a village upon the north-side of the *Arve*, in a valley, where there is a priory belonging to the Chapter of *Salanches* ; here we encamp'd, and while our dinner was preparing, we inquired of the people of the place about the *glacieres*. They shewed us at first the ends of them which reach into the valley, and were to be seen from the village ; these appear'd only like white rocks, or rather like immense icicles, made by water

running down the mountain. This did not satisfy our curiosity, and we thought we were come too far to be contented with so small a matter; we therefore strictly inquired of the peasants whether we could not by going up the mountain discover something more worth our notice. They told us we might, but the greatest part of them represented the thing as very difficult and laborious; they told us no-body ever went there but those whose business it was to search for crystal, or to shoot *bouquetins* and *chamois*, and that all the travellers, who had been to the *glacieres* hitherto, had been satisfied with what we had already seen.

The prior of the place was a good old man, who showed us many civilities, and endeavoured also to dissuade us; there were others who represented the thing as mighty easy; but we perceived plainly, that they expected, that after we had bargain'd with them to be our guides, we should soon tire and that they should earn their money with little trouble. However our curiosity got the better of these discouragements, and relying on our strength and resolution, we determined to attempt climbing the mountain. We took with us several peasants, some to be our guides, and others to carry wine and provisions. These people were so much persuaded that we should never be able to go through with our task, that they took with them candles and instruments to strike fire, in case we should be overcome with fatigue, and be obliged to spend the

night on the mountain. In order to prevent those among us who were the most in wind, from fatiguing the rest, by pushing on too fast, we made the following rules: that no one should go out of his rank; that he who led should go a slow and even pace; that who ever found himself fatigued, or out of breath, might call for a halt; and lastly, that when ever we found a spring we should drink some of our wine, mixed with water, and fill up the bottles we had emptied, with water, to serve us at other halts where we should find none. These precautions were so useful to us, that, perhaps, had we not observed them, the peasants would not have been deceived in their conjectures.

We set out about noon, the 22nd of *June*, and crossed the *Arve* over a wooden bridge. Most maps place the *glacieres* on the same side with *Chamoigny*, but this is a mistake. We were quickly at the foot of the mountain, and began to ascend by a very steep path through a wood of fir and larche trees. We made many halts to refresh ourselves, and take breath, but we kept on at a good rate. After we had passed the wood, we came to a kind of meadow, full of large stones, and pieces of rock, that were broke off, and fallen down from the mountain; the ascent was so steep that we were obliged sometimes to cling to them with our hands, and make use of sticks, with sharp irons at the end, to support ourselves. Our road lay slant ways, and we had several places to cross where the *avalanches*

of snow were fallen, and had made terrible havock; there was nothing to be seen but trees torn up by the roots, and large stones, which seemed to lie without any support; every step we set, the ground gave way, the snow which was mixed with it made us slip, and had it not been for our staffs, and our hands, we must many times have gone down the precipice. We had an uninterrupted view quite to the bottom of the mountain, and the steepness of the descent, join'd to the height where we were, made a view terrible enough to make most people's heads turn. In short, after climbing with great labour for four hours and three quarters, we got to the top of the mountain; from whence we had the pleasure of beholding objects of an extraordinary nature. We were on the top of a mountain, which, as well as we could judge, was least twice as high as Mount *Saleve*, from thence we had a full view of the *glacieres*. I own to you that I am extremely at a loss how to give a right idea of it; as I know no one thing which I have ever seen that has the least resemblance to it.

The description which travellers give of the seas of *Greenland* seems to come the nearest to it. You must imagine your lake put in agitation by a strong wind, and frozen all at once, perhaps even that would not produce the same appearance.

The *glacieres* consist of three large valleys, that form a kind of Y, the tail reaches into the *Val d'Aoste*, and the two horns into the valley of *Chamoigny*,

the place where we ascended was between them, from whence we saw plainly the valley, which forms one of these horns.

I had unluckily left at *Chamoigny* a pocket compass, which I had carried with me, so that I could not well tell the bearings as to its situation ; but I believe it to be pretty nearly from north to south. These valleys, although at the top of a high mountain, are surrounded by other mountains ; the tops of which being naked and craggy rocks, shoot up immensely high ; something resembling old *gothic* buildings or ruines, nothing grows upon them, they are all the year round covered with snow ; and our guides assured us, that neither the *chamois*, nor any birds, ever went so high as the top of them.

Those who search after crystal, go in the month of *August* to the foot of these rocks, and strike against them with pick-axes ; if they hear them resound as if they were hollow, they work there, and opening the rock, they find caverns full of crystalisations. We should have been very glad to have gone there, but the season was not enough advanced, the snow not being yet sufficiently melted. As far as our eye-sight could reach, we saw nothing but this valley ; the height of the rocks, which surrounded it, made it impossible for the eye to judge exactly how wide it was ; but I imagine it must be near three quarters of a league. Our curiosity did not stop there, we were resolved to go down upon the

ice ; we had about four hundred yards to go down, the descent was excessively steep, and all of a dry crumbling earth, mixt with gravel, and little loose stones, which afforded us no firm footing, so that we went down partly falling, and partly sliding on our hands and knees. At length we got upon the ice, where our difficulty ceased, for that was extremely rough and afforded us good footing ; we found in it an infinite number of cracks, some we could step over, others were several feet wide. These cracks were so deep, that we could not even see to the bottom ; those who go in search of crystal are often lost in them, but their bodies are generally found again after some days, perfectly well preserved. Our guides assured us, that these cracks change continually, and that the whole *glaciere* has a kind of motion. In going up the mountain we often heard something like a clap of thunder, which, as we were informed by our guides, was caused by fresh cracks then making ; but as there were none made while we were upon the ice, we could not determine whether it was that, or *avalanches* of snow, or perhaps rocks falling ; though since travellers observe, that in *Greenland* the ice cracks with a noise resembling thunder, it might very well be what our guides told us. As in all countries of ignorance people are extremely superstitious, they told us many strange stories of witches, &c., who came to play their pranks upon the *glacieres*, and dance to the sound of instruments. We should have

been surprised if we had not been entertained in these parts, with some such idle legends. The *bouquetins* go in herds often to the number of fifteen or sixteen upon the ice, we saw none of them ; there were some *chamois* which we shot at, but at too great a distance to do any execution.

There is water continually issuing out of the *glacieres*, which the people look on as so very wholesome, that they say it may be drank of in any quantities without danger, even when one is hot with exercise.

The sun shone very hot, and the reverberation of the ice, and circumjacent rocks, caused a great deal of thaw'd water to lie in all the cavities of the ice ; but I fancy it freezes here constantly as soon as night comes on.

Our guides assured us that in the time of their fathers, the *glaciere* was but small, and that there was even a passage thro' these valleys, by which they could get into the *Val d'Aoste* in six hours : but that the *glaciere* was so much increased, that the passage was then quite stopped up, and that it went on increasing every year.

We found on the edge of the *glaciere* several pieces of ice, which we took at first for rocks, being as big as a house ; these were pieces quite separate from the *glaciere*. It is difficult to conceive how they came to be formed there.

Having remained about half an hour upon the *glaciere*, and having drank there in ceremony

Admiral *Vernon's* health, and success to the *British* arms, we climb'd to the summit, from whence we came, with incredible difficulty, the earth giving way at every step we set. From thence, after having rested ourselves a few minutes, we began to descend, and arrived at *Chamouny* just about sun-set, to the great astonishment of all the people of the place, and even of our guides, who owned to us they thought we should not have gone through with our undertaking.

Our curiosity being fully satisfied, we left *Chamouny* the next day, and lying at *Salanches*, we got the 23rd to *Bonneville*. The nearness of this place to the *Maule* raised in us an inclination to go up it. We set about this task the next day early in the morning; we fancied that after the *glacieres* every mountain would be easy to us, however it took us more than five hours hard labour in getting up; the ascent being extremely steep; though, after two thirds of the way, there is a fine green turf quite up to the top, which ends in a point, the mountain being like a sugar-loaf on one side, and quite perpendicular on that part which lies farthest from *Geneva*. From this point there is a most delightful view, on one side, upon the lake *Geneva*, and the adjacent parts; on the other, upon high mountains covered with snow, which rise around, in form of an amphitheatre, and make a most picturesque prospect. After having stay'd some time here, we returned back, and went on to *Annecy*

where we lay, from whence the next day we got to Geneva.

Those who are desirous to undertake this journey, ought not to set out till towards the middle of *August ;* they would at that time find not so much snow on the mountain. They might go to the crystal mines, and divert themselves with the shooting of *bouquetins ;* the oats would then be cut, and their horses would not suffer so much. Although we met with nothing which had the appearance of danger, nevertheless I would recommend going well armed ; t'is an easy precaution, and on certain occasions very useful, one is never the worse for it, and oftentimes it helps a man out of a scrape. Barometers to measure the height of the mountains, portable thermometers, and a quadrant to take heights with, would be useful, if there were a mathematician in company. A tent would not be necessary, unless for those who had a mind to examine every thing with the greatest care and exactness, and make observations ; in this case one might pitch it upon the mountain, and pass the night in it, if it were necessary, for it did not seem very cold there.

With these precautions one might go through the other parts of these valleys, which form the Y, and one might find out whether the cracks change daily as we were told ; one might also measure those excessive high rocks which are on the side of the *glaciere*, and make other curious observations, according to the taste and genius of the travellers ; who,

if they were inclined to Botany, might find an ample field of amusement.

One who understood drawing might find wherewithal to imploy himself, either on the road, or in the place itself; in short, a man of genius might do many things we have not done. All the merit we can pretend to is having opened the way to others who may have curiosity of the same kind.

It might be right to take victuals ready dress'd, and salt, meat, bread and wine, for there are some places where one can get no provisions, and the little there is to be had in other places, is very bad. We bought a sheep, which we killed, and dressed upon the spot.

It is necessary to carry halters to tie the horses, cut shoes, nails, hammer, &c., for they lose their shoes continually in those stoney roads.

With such precautions all kinds of journeys become easy and agreeable, even in the most desart countries, and one is then more in a condition to observe with care and accuracy, whatever occurs worth notice.

This is the substance, Sir, of what I can recollect of our journey. My having so long defer'd giving you this account is owing to the incapacity which I found in myself to say any thing worth being presented to a person of so good a taste as yourself. However, upon the whole, t'is your good taste which ought to encourage me: your

lively and penetrating imagination, which unites in one, both the poet and the painter, will at once lay hold and perfect what I have but slightly sketched.

I am, with the greatest esteem,

Sir,

Your most obedient humble servant."

The first to answer this call to Chamonix as a result of Windham's account was the Genevan engineer, Peter Martel, who wrote the letter describing his journey (which he undertook in 1742), to Windham. This letter is interesting in that it contains the first known mention of the name of Mont Blanc.

As to the word *glaciere*, so frequently used by Windham, Ramond defines it as the mountains on which ice collects, while the term *glacier* is applied to the streams of ice which descend from such mountains.

CHAPTER IX

A GROUP OF SCIENTISTS

THE eighteenth century witnessed the publication of more than a hundred accounts of journeys through the Alps, undertaken for the purpose of scientific observations, or as holidays. It is as impossible as it is undesirable to attempt to deal with all of them in these pages, although it prevents justice being done to a number of persons of distinction and interest. Chief among the latter is the celebrated poet, scientist, and statesman, Albrecht von Haller, of Berne. When he was ten years old, so Coxe relates (and he was a personal friend of Haller's son), Haller composed a Chaldaic grammar, a Greek and a Hebrew lexicon, for his private use. In 1727 he visited England, where he met Sir Hans Sloane, and improved his knowledge of medicine and surgery. In the following year, aged twenty, he set out for a holiday in the Alps with his friend, Johann Gesner, " pour voir la nature," and for the sake of his health. Past Lausanne they went, and into the Valais ; over the Gemmi to Kandersteg and through Interlaken to Meiringen. From there they crossed the Joch pass to Engelberg, and made

their way to Lucerne and to Zürich. That was in 1728, and the year after, he composed his book of poems *Die Alpen*, which was published in 1732. It went through thirty editions during his lifetime, and is important in that it introduced the Alps into literature, though the graceful praises which he sang were more those of the dwellers in the Alps than of the mountains themselves. So greatly were his poems in vogue that they are said to have been known by heart in the drawing-rooms of France and Germany. Von Haller made numerous other journeys in the Alps, collecting botanical specimens, and he was present with the boundary commission appointed by Berne and Valais to settle the frontier on the Grimsel pass. Without going into these journeys, it may be mentioned that Haller had considerable connexions with England. He was appointed Physician to George II in 1739, at whose instance the Emperor Francis conferred on him letters of nobility, and in 1745 he declined an invitation to Oxford, which would probably have resulted in his appointment to the professorship of Botany, vacant by the death of Dillenius. He is regarded as a father of modern physiology, and so great was his fame that it is said that when one day an English ship was captured by pirates, finding on board a case of books addressed to Haller, they promptly landed it at the next port with instructions for its safe forwarding. It is also interesting to record that when Haller was a medical student in

ALBERTUS DE HALLER
Huic lex summa fuit Naturæ voce doceri
Huic dominæ doctas subdidit artis opes :
Ingenuus veri vel ab hoste nitentis amicus
Censor & erroris candidus ipse fui.
P. G. Werlhof.
Chez MARC-MICHEL BOUSQUET et Comp.e 1757.

PLATE XVI.—Albrecht von Haller, painted by Handmann, engraved by Tardieu.

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Paris, the supply of bodies for dissection was so meagre that he had to resort to theft to satisfy his scientific appetite, and that when this practice was discovered he had to fly for his life !

Of the remaining men considered in this chapter, each had his own particular line of investigation on which he concentrated his attention. Just as Scheuchzer always set up his barometer and could never pass a spring without inquiring into the nature of its water, Johann Georg Sulzer was interested to see whether the force with which a magnet deflects the needle of a compass is affected by the altitude when on a mountain. Gottlieb Sigmund Gruner specialised in glaciers, and propounded a theory which had the honour of being accepted by de Saussure, to explain their motion. Jean André de Luc, who had perfected the barometer, is famed for his investigations into the temperature at which water will boil at high altitudes. H. Besson was primarily a geologist, and many of his observations and comments, which appear to have escaped notice in later years, are of great interest in that they seem to anticipate the views of subsequent writers.

As Sulzer, in company with Johann Casper Hirzel, set out from Zürich on August 11th, 1742, over the Albis to Maschwanden on the Reuss, he was impressed by the crying need for greater accuracy and more critical methods in the construction of maps of the Alps. Indeed, this was a partial reason

for his undertaking this journey, because he had previously taken the care to have a base line, a thousand feet long, marked out at Maschwanden. From each end of this line, he proposed to observe the angles made by the summits of the Rigi and Pilatus, and so start the nucleus of a geometrical triangulation which might be added to by other travellers, as and when they had the opportunities to make the necessary observations. Next morning, however, Sulzer was prevented from proceeding with this laudable enterprise, for mists prevented him from seeing the peaks. Proposing, therefore, to take the readings on another occasion, they crossed the lake of Zug from Zug to Arth, and commenced ascending the Rigi, as far as Dächli, where they spent the night.

On the following day, after performing experiments with the magnet and compass, they went up, past Klösterli and Kaltbad to the Rigi Kulm, the view from which Sulzer describes as " the most beautiful in the world." His opinion of the geological structure and mode of formation of the mountain is that still held to-day. In the evening they dropped down to Küssnacht. After another magnet experiment, they left on the 14th by lake for Lucerne, and then took the road to Kriens and Hergiswald, whence they reached a hut in the Eigental, preparatory to ascending Pilatus on the morrow. This they successfully accomplished, descending to Alpnach and Stansstad.

A
B
C
D
E
F
G
H
J
Handmann pinxit.
Abbildung des Gletschers in dem Grindelwald, Cantons Bern, so wie er von Herr Professor Altman, beschriben worden.
D. Herrliberger ex. Zurich mit privil. 1755.
Vuë des Glacieres du Grindelwald, dans le Canto de Berne, tirée de la Description de Mons: le Professeur Altman.

PLATE XVII.—View of the Lower Grindelwald Glacier, *circa* 1749, painted by Handmann, engraved by Herrliberger, from Herrliberger's "Topographie der Eydgnossschaft," Zürich, 1755.

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It had been their intention to reach Altdorf over the Surenen pass, but an attack of fever prevented

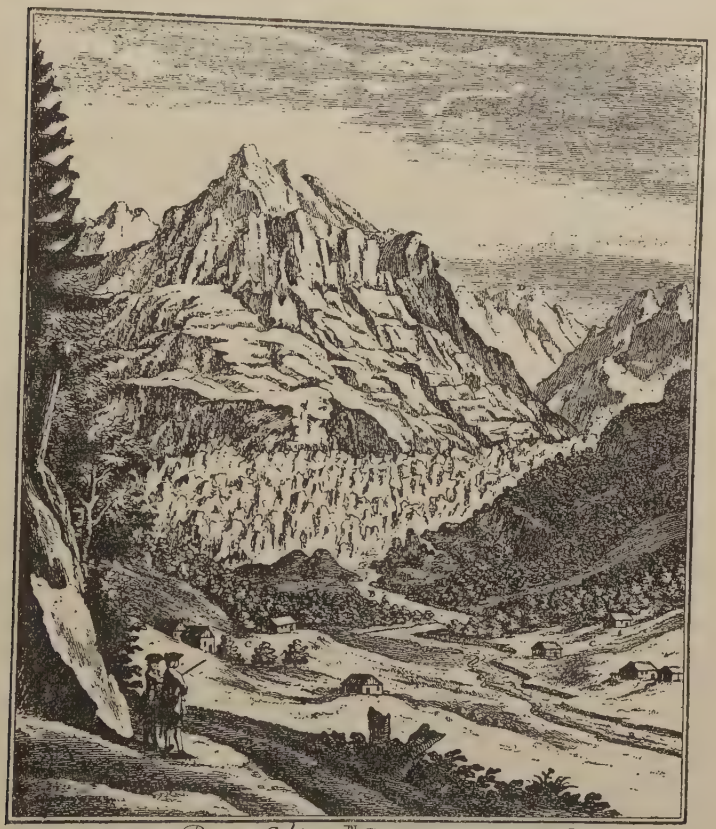
GLETSCHERS, im Berner Gebiet.
Das Eiss oder Gletschers so vom Boden aufwachsset, und alles von sich stosst, mit ungestuhm und vielem Krachen. B. der fluss Lütschinen so unter dem Eiss herfür quillet. C. Wohnungen mit welchen man dem Gletscher hat weichen müssen. D. Hoch gebürge mit Ewigem Schnee bedeckt.
GLETTSCHERS, C'est à dire Glaces eternelles, au Canton de Berne
A. Glaces, qui s'élevent de la Terre, et qui écartent tout avec impetuosité, et grand bruit. B. La Fleuve Lourtschines, qui Sort de dessous les Glaces. C. Habitations qu'il a fallu transposer pour céder aux Glaces D. Alpes Couvertes d'une Neige perpetuelle.

FIG. 29.—View of Grindelwald, from Herrliberger's "Topographie der Eydgnossschaft," Zürich, 1754.

it, so on the 18th they sailed over the lake to Flüelen. Of the road up the Reuss valley, Sulzer says that

it might be done in a carriage, but it was not until 1775 that Mr. Greville demonstrated the truth of this. After crossing the Devil's bridge, they went through the tunnel of the Urnerloch which had been pierced in 1707 by Pietro Moretini, thus doing away with the necessity for the hazardous planks on which Scheuchzer had made his way into the Urserental in 1705. Sulzer and Hirzel stayed at Hospenthal, where it is interesting to note that even then it was possible " to live very well for little money."

The next day was devoted to a visit to the top of the St. Gotthard pass and back. Sulzer was still one of those who regarded the peaks of the Gotthard massif as the highest in Europe.

The journey was continued over the Oberalp pass to the valley of the Vorderrhein, and through Chur back to Zürich. But when he returned to Maschwanden on the 28th he was ill, and that is perhaps why the Alps had to wait for their triangulation until General Pfyffer began his famous relief map (now in the glacier-garden at Lucerne) twenty years later.

Of the mountains which Gruner describes in his monograph on the glaciers of Switzerland (published in 1760), the only ones of which he had personal knowledge were those of the Bernese Oberland. He has the distinction of being the first author to mention the Susten pass, of which he says that it " is, however, so cruelly steep that

FIG. 30.—View from the Petronella Balm at Grindelwald, drawn by Lory, engraved by Hegi, from Wyss's "Voyage dans l'Oberland Bernois," Berne, 1817.

persons affected with giddiness cannot use it." The tardiness with which the Susten pass came to notice is remarkable, but perhaps an explanation can be found in the former greater extension of the Stein glacier, which would have made it difficult, if not impassable.

Actually, according to Bähler, the very first mention of the Susten pass occurs in the Berne archives of the First Villmerger war, in 1656. Two Bernese soldiers who had crossed the pass were captured and taken to Wassen, but hostilities do not seem to have been taken very seriously between Berne and Uri, for the two men were treated as friends and escorted back to Bernese territory. The same good feeling also prevailed during the Second Villmerger war in 1712. The same thing happened, and this time seven men of Berne were taken by the Uranese. They were sent back with their arms, and with surely the most remarkable letter ever sent from one belligerent state to another. It was addressed to Colonel Johann Ludwig Tillier, commanding the Bernese troops, and ran as follows : " Noble, good, and wise Sir. When these seven men came into our territory and were held by ours and brought to us, up to when we have experienced all friendly neighbourliness, we, as is meet, have desired to release these people in neighbourly fashion and send them back free, trusting that the same friendliness will continue to be shown to us and ours, since we pray to God that our Fatherland,

PLATE XVIII.—View of Grindelwald, *circa* 1700, drawn by Meyer, engraved by Zingg, from Gruner's "Eisgebirge des Schweizerlandes," Berne, 1760.

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beloved of us both, may be restored to sweet tranquillity and prosperity." Nevertheless, this war has left a memento in the form of the Meienschanze, the fort near Wassen (built in 1710 by Pietro Moretini, the engineer of the Urnerloch, and destroyed by the French in 1799), to protect Catholic Uri from possible incursions over the Susten pass by Protestant Berne. The pass first appeared on a map in 1697.

The same good feeling does not seem to have prevailed between Berne and the Valais. On the outbreak of hostilities, three men of Grindelwald were caught by the Valaisans, and Gruner relates that they made their escape back to Grindelwald over the glaciers, and therefore presumably by the Strahlegg pass. There was a tradition that this pass was in regular use at early times, and in 1839 Agassiz noticed what he took to be unmistakable traces of the track along the side of the Aletsch glacier.

In Grindelwald, Gruner noticed that the lower glacier had retreated considerably since the beginning of the century, and he draws attention to the evidence as to its past conditions available in the engravings by various artists at different dates. In order to illustrate this, the engravings of the Grindelwald glaciers by Merian, Herrliberger, Gruner, and others, are reproduced in this book. He looked in vain for the vestiges of St. Petronella's chapel (which is shown in Schöpf's map of 1578),

and was of the opinion that this daughter of St. Paul was selected as the patron of the chapel because of her fever-healing powers, for glacier-water was regarded as an efficient febrifuge. Altmann had suggested that the name Petronella was " invented "

FIG. 31.—David Herrliberger, after Füessli from Grand-Carteret.

from the proximity of the rocks (petri), against the fall of which the Saint was supposed to protect the meadows and pastures.

Glaciers were, of course, Gruner's speciality, and his theory was that they moved down the slope of the valley under the impulse of their own weight,

PLATE XIX.—View of the Glacier of the Rhone, *circa* 1720, drawn by Meyer, engraved by Zingg, from Gruner's " Eisgebirge des Schweizerlandes," Berne, 1760.

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the friction against the bottom being overcome by the melting of the undermost ice : a view which was more or less similar to that held by Altmann, at about the same time. It is also interesting to note that a quantitive treatment of the problem was beginning to suggest itself, for Gruner records that a rock on the lower Grindelwald glacier was observed to descend fifty paces in the space of six years.

With regard to the Grimsel pass, Gruner applies the name Todtensee to the little lake immediately south of the pass. Modern guide-books derive its name from the sanguinary battle which took place on its shores between the French and the Austrians in 1799, but the fact that Gruner gives it in 1760 shows that this is incorrect. It probably refers to the lake's often being frozen even in summer, or to its stagnant appearance. The etymology of the Gemmi is also treated by Gruner, who refers to Simler's mention of the Seufzenmatt, the meadow of sighs (again gemitus !) at its foot, where a battle was fought in 1318.

J. A. de Luc, F.R.S., of Geneva, made a number of journeys in the Alps, but here attention will be restricted to those directed towards the ascent of Mont Buet, on the top of which he wanted to boil water and measure its temperature. He was nothing if not methodical, for he says that on his journeys, " since in inns one is most often lodged on the first floor, it is always on the first floor that I have made my observations."

He set off from Geneva with his brother on August 24th, 1765, and took the road through Taninges and Samoëns to Sixt, where they stayed at the monastery. The expedition was, however, a failure, for when they had ascended the Grenairon, they found themselves confronted with a precipice, and had to return.

They started again from Geneva on August 24th, 1770, and found a young chamois-hunter to lead them. De Luc was very interested in the construction of the hunter's gun, which was loaded twice down the same barrel to enable him to get in a second shot if necessary. When they had got some way up the mountain, they halted to perform the boiling water experiment. De Luc was lying on the ground blowing the fire, when the hunter, not a little disgusted at the ridiculous occupation, threw himself heavily down, but unfortunately on de Luc's foot, which got twisted. Not only was he thereby prevented from completing the ascent of the Buet, but he could only descend from where he was with the greatest difficulty. So, deserted by the callous chamois-hunter, they spent a miserable night on the mountain, and thus ended the second attempt.

Quite undaunted, they made a third start from Geneva on September 20th of the same year, and after being delayed by bad weather, at last succeeded in getting to the top of the Buet on the 25th.

In 1772, de Luc made a second ascent of the Buet,

PLATE XX.—Jean André de Luc, drawn by Wilhelmine de Stretten, engraved by Schrœder. *By permission of the Bibliothèque publique et Universitaire, Genève.*

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via the Val d'Anterne, accompanied by his brother and M. Dentan. The way to the hut which was to serve as their night quarters was difficult to find, but they were consoled by the fact that " the mountain air has this salutary property that it spreads a kind of calm through all the organs, allowing the soul to enjoy itself very tranquilly " (quoted from Gribble). The hut when found was already occupied by some peasant women, who shared it with the three savants. But bad luck seemed to dog de Luc's efforts also in this attempt on the Buet, for in the hut he knocked over and broke his thermometer, the essential instrument for experiments with boiling water.

On a tour in Switzerland in 1774, de Luc accompanied Miss Schwellenberg, Lady in Waiting to Queen Charlotte to whom de Luc was Reader.

Coming now to the last of the persons dealt with in this chapter, Henri Besson left Geneva on July 15th, 1777, making his way along the north shore of the lake of Geneva to Martigny. As a geologist, he paid particular attention to mines. The salt mines of Bex were a subject of great interest, and the valley of Sembrancher leading to the Great St. Bernard proved a veritable Eldorado, for it contained mines of copper, lead, cobalt, mercury, and gold.

After a visit to the glaciers of the valley of Chamonix, Besson struck up the Valais to Leukerbad, where he makes a sagacious observation. The houses

were built of wood, and he says that " a person coughing is heard throughout the whole house." The Gemmi pass had been reconditioned in 1741, and for its name he gives yet another explanation, deriving it from gemini, alluding to the twin conical peaks at the top.

Brig was " so horribly hot, that he could scarcely breathe," and from there he went on to the Rhone glacier. On the way, between Obergestelen and Oberwald he noticed bands of limestone on either side of the valley at the same height, but of different nature. This puzzled him not a little, as well it might, for the explanation was not to come to light until the present century, as a result of the work of Argand and Lugeon. The limestone mountains which constitute the northern fringe of the Alps have not been formed *in situ*, but are the result of gigantic folds and overthrusts (" Nappes," or " Decken ") from the south. So great were the forces producing this distortion that the folds were torn away from their roots, and it was these limestone roots, hemmed in between the granitic massifs of the Aar to the north and the Gotthard to the south, which had struck Besson.

But his perspicacity did not end there, for in front of the Rhone glacier he noticed a number of crescentic ridges at varying distances from the glacier, and rightly interpreted these as terminal moraines, left behind by the glacier at previous periods of greater extension. It was not a very big

PLATE XXI.—View of the Glacier of the Rhone, *circa* 1777, drawn by Besson, engraved by Niquet fils, from de Laborde's " Tableaux Topographiques, Pittoresques, etc.," Paris, 1777–80.

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step from this observation to Agassiz' demonstration that the glacier had formerly extended for hundreds of miles.

Perhaps the most interesting of Besson's views are those dealing with the glaciers themselves. He noticed that some crevasses looked as if they had become closed up and obliterated, an observation resembling Faraday's demonstration of the phenomenon of " regelation " ; and he also saw the bands of ice of a blue colour, which bands Forbes afterwards pointed out to Agassiz, who had not previously noticed them. As to the method by which the glacier moves, he draws attention to the fact that masses of ice are constantly falling, and says that " when this collapse occurs on a slope, the ice is forced to move down, in succession, piece by piece ; and when one adds the pressure of the enormous masses higher up the glacier which increase and accumulate annually it becomes easy to understand the phenomenon of the movement of a glacier."

In order to study the details of this movement, he proposed to plant stakes in alignment across a glacier, and see how the line became distorted (as apparently M. Hennin, the French Envoi at Geneva had done on the Mer de Glace, about 1773), and urged the local priests to do this. He is, however, very despondent as to the probability of their doing so.

Besson did not go over the Furka, but turned back to go up the Egginental, and over the Nufenen

pass to Airolo. Thence he ascended the St. Gotthard pass, on the passage of which he states that 1,200 horses were constantly employed. He also still thought that the Gotthard massif was the highest point in Europe.

From Altdorf he went to Lucerne by lake, passing by the little state of Gersau. This little republic of 300 souls had once, according to Mr. Lunn, fallen foul of its powerful neighbour, canton Lucerne. The men of Lucerne raided Gersau one night and hanged a man of straw on the gallows, in contempt of Gersau's jurisdictional powers. The men of Gersau retorted ingeniously by decking out the straw-man in the colours of Lucerne. That was in the fifteenth century, but ingenuity had not left Gersau by the time of Besson's visit, for, as he found, the little state had hit upon an excellent solution of the drink question. In the inn there was a notice posted up, expressly forbidding any-one to give drinks to two citizens specified by name, for one got intoxicated, and the other became quarrelsome.

On another journey, Besson left Berne for Grindelwald, where he found " health and contentment on the faces of all." The glaciers were advancing and knocking down trees, while a few feet away men were felling others saying that they did not wish to lose the timber. With regard to St. Petronella's chapel, he states that its bell, which bore the date 1440, had been removed to Grindelwald.

PLATE XXII.—View of the Devil's Bridge, drawn by Chatelet, engraved by Masquelier, from de Laborde's "Tableaux Topographiques, Pittoresques, etc.," Paris, 1777–80.

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(Wyss, however, has it that the date on the bell was 1044, together with the inscription, " O. S. Peternela, ora pro nobis." The bell disappeared in the fire of 1892.)

After crossing the Grosse Scheidegg, he arrived at Meiringen in the Haslital, the inhabitants of which claim descent from the Swedes. As usual, full details as to this remarkable legend are given by Tschudi, in p. 31 of the 1st book of *Gallia Comata*. " How some of the army of the Cimbrians, from Sweden, Norway, and East Friesland, who escaped (destruction by Marius), were harboured by the Helvetii in Schwyz, Hasli, Stans below the Kernwald, and also in the Black Forest." It appears that the captain of the host from East Friesland, Resti by name, was a native of Haszelingen on the river Häs, below Münster in Westphalia. He was given land near the source of the Aar, where he built a town and called it Hasli (Meiringen) after his birthplace. Wyss relates that when king Gustavus Adolphus negotiated with the Swiss in the Thirty Years' War, he reminded them of their ancient connexion with his country ; and further, that when at a later date a king of Sweden travelled incognito in Switzerland as Count de Gottorp, the people of Hasli acclaimed him as a countryman.

From Meiringen, Besson crossed the Joch pass to Stans, and crossed the lake of Lucerne to Brunnen and Schwyz, noticing that the mountains through which he went were not of granite but of limestone.

From Schwyz he crossed the Haggenegg to Einsiedeln, and thence reached Rapperswil. His journey then lay through Glarus and up the Sernftal to Elm, where he was attracted by the slate quarries with their fossils (" petrifactions "), and was given marmot and chamois to eat by his host, the priest.

To get to the valley of the Rhine, he chose the Panixer pass, and after visiting the source of the Vorderrhein, returned to Chur. Thence he made for Zürich via Altstätten and St. Gall. In Zürich, he records as a " singular present " to the public library an anonymous gift of a complete set of works against the Jesuits, with the sum of 100 ducats as a continuation fund. The donor, as was discovered after his death, turned out to be an Englishman, Mr. Hollis. Thomas Hollis had travelled in Switzerland in 1748, and had conceived such an affection for the country, that he showered gifts of books, not only on Zürich, but also on Geneva, Basle, and Berne.

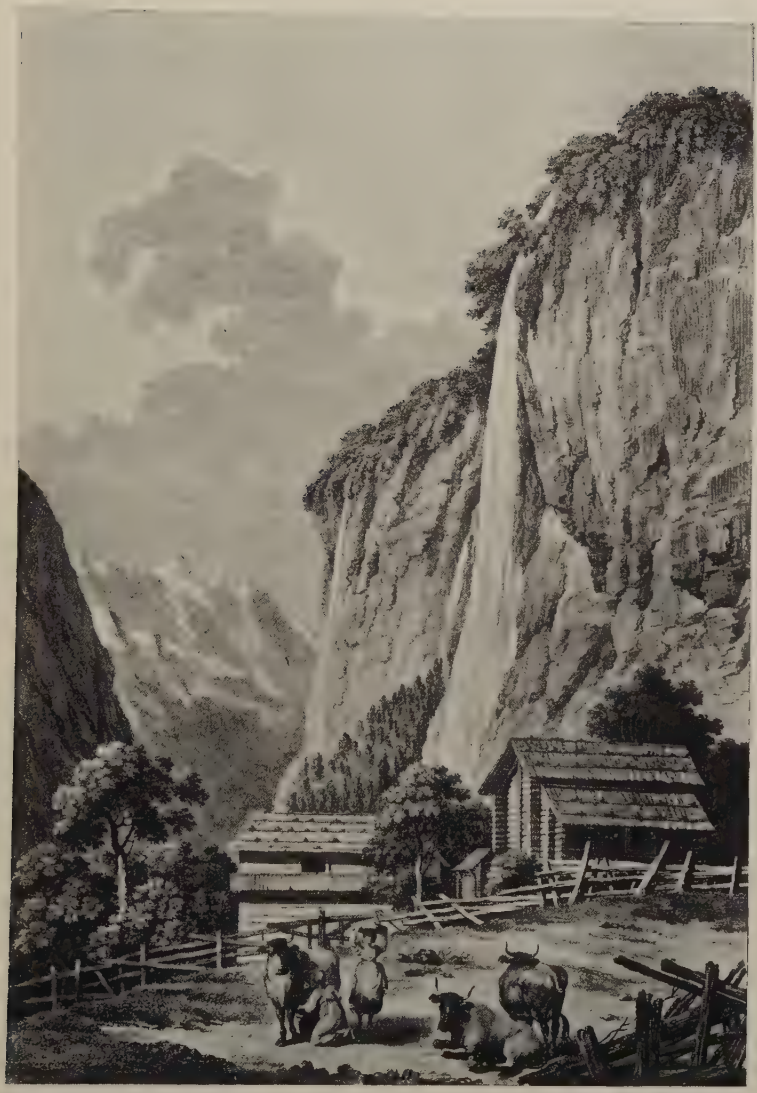

PLATE XXIII.—View of the Staubbach at Lauterbrunnen, drawn by le Barbier l'ainé, engraved by Masquellier, from de Laborde's "Tableaux Topographiques, Pittoresques, etc.," Paris, 1777–80.

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CHAPTER X

ANOTHER GREAT ALPINE TOURIST

Of all the accounts of travels through Switzerland in the eighteenth century, none enjoyed such a high reputation for accuracy and completeness as that of Archdeacon William Coxe. Coxe, who is famed for his travels in other parts of the world, made four journeys in Switzerland, in the years 1776, 1779, 1785, and 1786, but in the second and later editions of his book, they are treated as a continuous narrative with interpolations.

Switzerland seems to have appealed to him from the start, for on his arrival at Schaffhausen he says " I feel great delight in breathing the air of liberty ; every person here has apparently the mien of content and satisfaction." He went through Constance to St. Gall, where he observes sadly that the famous library never recovered the works lent to the cardinals and bishops at the Council of Constance.

Passing through canton Appenzell, he arrived at Oberriet in the valley of the Rhine, obviously enjoying the walking tour, his coat slung upon his shoulder, " like a peripatetic by profession." Coxe's

greatest interest was in details of political constitution, and nowhere indeed could he have found a better place to indulge in this study than in Switzerland. After observing the details of the government of Sargans, he went to Glarus. In this canton he confirmed Ray's statement that the Catholics and the Protestants share the same churches. After a visit to the Pantenbrücke, he returned to Glarus, where he appears to have been much struck by the friendliness of the innkeeper. "Our host is an open-hearted honest Swiss: he brings his pint of wine, sits down to table with us, and chats without the least ceremony."

From Glarus he visited Einsiedeln, and saw the statue of the Virgin, whose clothes are changed every week, and the five holes in a plate of silver, said to have been made by God's fingers, and into which the pilgrims thrust theirs. Altogether, he was disgusted with this "superstitious trumpery," and got away to the little republic of Rapperswil.

In Zürich, he visited Salomon Gessner, and Lavater the author of four large quarto volumes on physiognomy. Coxe was sceptical as to the value of this method of mental discrimination. He allowed that it might be possible to tell the temper of a horse from its looks, but when it came to applying the same method to a bee, an ant, or a cockroach, he could not accept it. He also visited Heydegger's library, which possessed seven hundred incunabula.

PLATE XXIV.—View of the Lower Grindelwald Glacier, *circa* 1777, drawn by Besson, engraved by Fessard, from de Laborde's "Tableaux Topographiques, Pittoresques, etc.," Paris, 1777–80.

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On later visits he made excursions to the Greifensee and to Frauenfeld, but on his main journey he left Zürich over the Albis and arrived at Zug. There, the patron saint of the church was (and is) Oswald, king of Northumbria. It puzzled him considerably to understand the connexion between this English king and a small Swiss town, but he consoled his curiosity with the reflection that " in the church of Rome, Saints are easily transplanted into any soil."

After crossing the lake of Zug to Immensee, and embarking again at Küssnacht, he reached Lucerne, where he paid particular attention to the model or relief map which General Pfyffer was constructing. This model, which is to be seen in the glacier-garden, is the earliest accurately triangulated map of the Alps, and took nineteen years to make, from 1766 to 1785. While making the necessary observations in the field, General Pfyffer was twice arrested as a spy, and often had to work by moonlight in order to avoid molestation by the peasants, who feared that their liberties might be infringed upon, if their country were accurately mapped. When a section of the model had been finished, Pfyffer used to send for local inhabitants and ask them whether it conformed to nature.

Coxe was struck with the complications attached to the division of boundary property between the cantons, and especially by the case of the Kiemen peninsula, on the western shore of the lake of Zug.

Here, the ground belonged to Lucerne, the timber to Zug, and the leaves to Schwyz.

From Lucerne he went to Altdorf, but when he repeated the journey in 1785, he passed by Engelberg and over the Surenen pass. A few days after he had been at Engelberg, the physician to the monastery, Mr. Freygrabend, succeeded in ascending the Titlis. After a visit to the top of the St. Gotthard pass, where, as " Mr. de Boufflers said, a man might spit into the ocean and the Mediterranean," he crossed the Furka. On this first occasion he found it " very craggy and stony ; where if my steed had happened to stumble, we must both inevitably have perished." When he crossed it again, in 1786, however, it was much less formidable, and he rode along unconcernedly with the notes of his former passage in his hand.

The hovel which passed for an inn at Oberwald had only a large cheese as its sole provision, so he pushed on to Münster. There he had occasion to confirm Scheuchzer's statement as to the knowledge of the world of the Valaisans, for he had a conversation with a peasant on Constantinople, and on the war between England and her American colonies. The Grimsel pass took him into the Haslital, whence he went over the Grosse Scheidegg to Grindelwald. There, strangely enough, he was disappointed in the glaciers, but he noted on his visit in 1785 that the lower glacier had receded by the remarkable amount of 400 paces since 1776.

PLATE XXV.—View of the Urnerloch from the side of the Devil's Bridge, drawn by Perignon, engraved by Borgnet, from de Laborde's "Tableaux Topographiques, Pittoresques, etc.," Paris, 1777–80.

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After a visit to the valley of Lauterbrunnen, he went down to the lake of Thun and over the Gemmi pass into the Valais. From Martigny he crossed over to the valley of Chamonix, by the Tête Noire in 1776 and by the Col de Balme in 1785, and considered that the view from the latter was inferior to that from the Grosse Scheidegg overlooking Grindelwald. By now, the height of Mont Blanc had been measured by de Luc, Sir George Shuckburgh, and de Saussure, and Coxe agreed that it was higher than any point in Switzerland.

Coxe ascended the Montenvers, and had lunch on a large block of granite called " La Pierre des Anglais." This stone bore the inscription " Pococke et Windham, 1741." Coxe crossed the Mer de Glace, but an injury to his foot prevented him from accompanying his friends on an excursion to the Couvercle. But on his later journey, he left a memorial of his visit by raising, together with his friends the two Mr. Cliffords and Mr. Whitbread, a stone man six feet high, which they called " Le monument des quatre Anglois, in memory of the four Englishmen who amused themselves in forming it." Previous to this visit, Mr. Blair, an Englishman living in Geneva, had erected a small wooden hut on the Montenvers in 1779. This hut, which came to be known as Blair's cabin, is described as commodious by Coxe, and lasted until 1812.

Returning to the lake of Geneva, Coxe passed through Versoix, the site of Choiseul's Folly.

Versoix was then French, and M. de Choiseul being much displeased with Geneva, and acting on the advice of Voltaire (according to Jullien), determined to humble that republic by turning Versoix into a rival town and harbour, hoping to monopolise the whole trade of the lake. He had a pier built, the town laid out, and a garrison stationed. But when about £125,000 had been spent on the ridiculous scheme, it was abandoned.

In Lausanne, Coxe confirmed Addison's statements with regard to the street the inhabitants of which acted as a jury. It is unnecessary to follow Coxe on the remainder of this journey, which lay through the plain of Switzerland, except to mention a peculiarity of Basle. When he arrived there, he thought that it was noon, and was astonished to hear all the clocks strike one. For Basle had been practising daylight-saving for some time, although the reason for it is obscure.

On the one hand, it was said that the custom of having the clocks one hour fast dated from the time of the Council of Basle, which lasted from 1431 till 1448. The cardinals and bishops being very lazy and indolent (perhaps pardonably) were always late. So the expedient was tried of putting the clock on an hour to secure the greater punctuality of the princes of the church.

Another explanation was that a conspiracy had once been set on foot to murder the magistrates of the city at midnight. But one of the burgomasters

PLATE XXVI.—View of the Urnerloch from the side of the Urserental, drawn by Perignon, engraved by Borgnet, from de Laborde's "Tableaux Topographiques, Pittoresques, etc.," Paris, 1777–80.

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got to hear of the plot and frustrated it by advancing the clock one hour, with the result that when the conspirators met, they imagined that they had missed the appointed time, and the sinister deed remained undone.

Yet another view to account for the anomaly was that as the cathedral at Basle is not perfectly orientated towards the east, the sundial on the wall (by which the clocks of the town were regulated), gave an incorrect time. Be that as it may, the inhabitants were very tenacious of their chronological peculiarity, and always refused to agree to the proposal to synchronise their clocks with those of surrounding towns. Some of the leading men of the town took power into their own hands, and each day surreptitiously altered the position of the style of the sundial by half a minute. The good work had proceeded as far as three-quarters of an hour on the road to synchronisation, when these underhand dealings were discovered, and popular indignation insisted on the sundial being restored to its original condition, which it maintained until the Revolution (1798).

On his way to Neuchâtel, Coxe did not omit to pay a visit to Motiers-Travers, where, a short time before, Jean-Jacques Rousseau had found refuge under the protection of Lord Keith, Governor of the Principality of Neuchâtel for the King of Prussia. (Only in 1857 did Neuchâtel, although a Swiss canton since 1815, cease to be a Prussian Principality.)

Coxe's journey of 1779 was devoted to the Grisons. Arriving from Como, he came to Chiavenna, whence he crossed the Maloja pass into the Engadine, of which he says " the spirit of neatness is so general in upper Engadina, that I scarcely observed one bad house through the whole district." In Scanfs he met the learned M. Aporta, from whom he gleaned much information concerning the Romanch language, in which Coxe was very interested. It is not, as some supposed, a mixture of Italian and German, but a distinct language presenting two dialects. One, Rhæto-Romanch, is spoken in the valley of the Rhine and its tributaries, while the other, Ladin, is the tongue of the Engadine. The first book in Ladin was published at Poschiavo in 1560, while the first in Rhæto-Romanch appeared at Lindau in 1601. The first complete translation of the Bible, which appeared at Chur in 1718, was dedicated to George II when Prince of Wales, who acknowledged the compliment with a gift of fifty guineas. As Romanch is still very unfamiliar, it may not be without interest to present a specimen of Ladin.

Las Dolomitas, üna chadagna da muntagnas chalcheraisas cun pizs agüzs e chamins e vallorgias strettas, separan las valledas laterelas da l'Eisack affluent da l'Adisch sper Buzaun, da la terra veneziauna e furlauna. E'ls abitants da Val Gärdeina, Val Gadera, Val Fascha, etc., chi s'evran vers messanot, els discuorran aunch' hoz ün ladin ün

PLATE XXVII.—William Coxe, Archdeacon of Wilts, engraved by Thomas Holloway, from the European Magazine, 1787.

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pô corruot ed appartegnan a la veglia schlatta rumauntscha.

(The Dolomites, a chain of limestone mountains with sharp peaks, and narrow gorges and clefts, separate the lateral valleys of the Eisak, a tributary of the Adige above Bolzano, from the lands of Venetia and Frioul. The inhabitants of Val Gardena, Val Gadera, Val di Fassa, etc., which open towards the north, to-day still speak a slightly corrupt Ladin, and belong to the old Romanch stock.)

From Scanfs, Coxe continued down the Engadine to Zernez, at the start of the road over the Ofen pass, where he saw a tower which had been defended by the Marquis de Coeuvres in 1624. Then he passed the little Austrian enclave of Tarasp. Austria had bought it in 1464, and in 1687 it passed into the hands of the Dietrichsteins, until 1801 when Austria ceded it to France. It did not become Grison until 1809. When Coxe went by in 1779, the formality of the Austrian garrison was maintained by a single soldier. At Martinsbruck, Coxe passed out of the Grisons into Tyrol, and at Nauders he turned south to cross the Reschen Scheideck. This enabled him to re-enter the Grisons at Münster. From Sta. Maria he crossed the Umbrail pass to Bormio, and immediately noticed the Italian atmosphere. He says, " it was no bad remark of my servant, that the villages looked as if the inhabitants were mostly dead, and the place deserted."

Coxe next went down the Valtelline along the

course of the Adda, past Tirano to Sondrio, where he turned to the north to cross the Muretto pass. After spending the night in a hut, he crossed the pass, which he says was used for the transport of wine, and arrived at Casaccia. Going down the Val Bregaglia he returned to Chiavenna, whence he turned north and crossed the Splügen pass. At Splügen he was struck by the fact that the inhabitants were German-speaking, although surrounded by neighbours who spoke Romanch. Coxe had here hit upon one of the most interesting features of this part of the Alps. The descendants of German-speaking Valaisan colonists of the thirteenth century are still to be found having retained their language in six isolated places in the Grisons: Obersaxen, Rheinwald, Vals, Safien, Avers, and Davos. As a matter of fact, the religions vary as much as the language, so that, as Coolidge says, the Grisons present a perfect kaleidoscope of faiths and tongues. To show the extent of this mosaic, the following few particulars may be of interest concerning the various valleys which make up the Grisons.

As a general rule, the German language is associated with the Protestant religion, as is the case in Chur, Prätigau, Davos, Schanfigg, and Churwalden. Similarly, the Romanch language generally accompanies Catholicism, as in Vorderrhein (Rhine valley, between Reichenau and the Oberalp pass, but excepting Obersaxen which is German-speaking and Catholic, Versam and Valendas which are

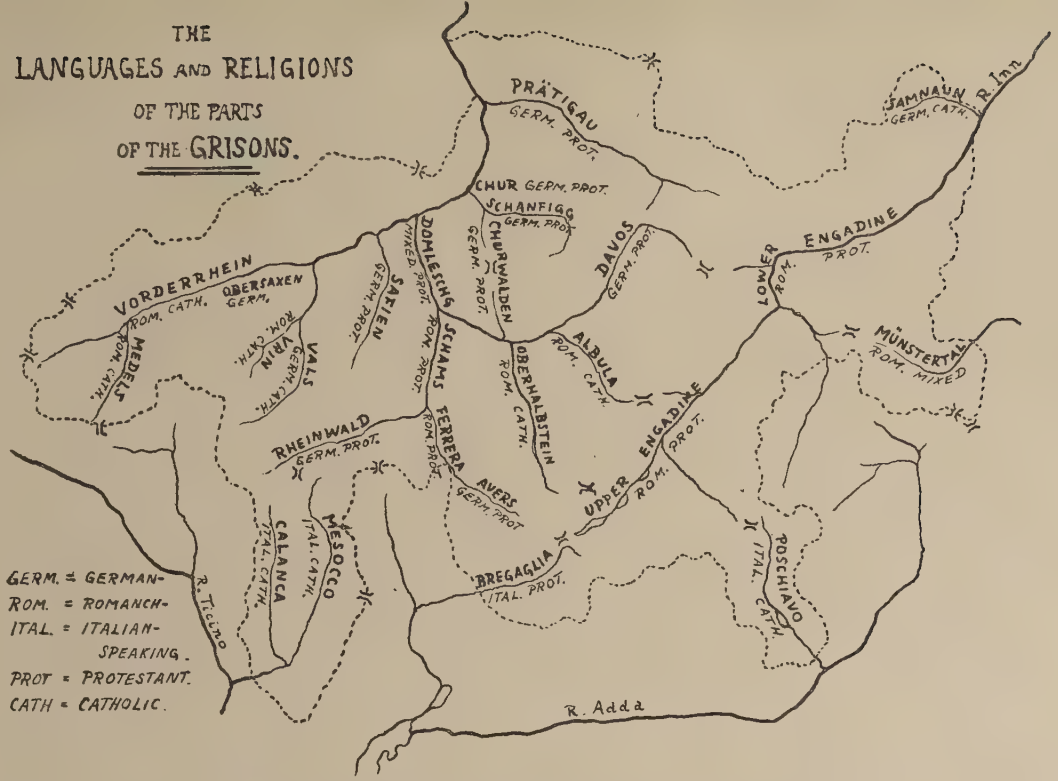

FIG. 32.—Map to show the distribution of the Protestant and Catholic religions, and the German, Romanch, and Italian languages in the Grisons.

German-speaking and Protestant, and Kästris, Flond, Luvis, and Waltensburg which are Romanch-speaking and Protestant), Val Medel (Lukmanier), Oberhalbstein, and Albula.

In the Domleschg (between Reichenau and Thusis) both German and Romanch are spoken, and the Protestant religion prevails. But while in the valley of Vrin the people are Catholic and Romanch-speaking, in the neighbouring valley of Vals (the name of which is reminiscent of the Valaisan origin of its inhabitants), they speak German while being Catholic, except at Riein, Pitasch, and Duvin, where they speak Romanch and are Protestant. In the adjacent valley of Safien the people are German-speaking and Protestant, as is also the case in the Rheinwald (source of the Hinterrhein). In the valley of Schams the Romanch language is associated with Protestantism, and, while at Ferrera the same is the case, higher up the same valley at Avers, German is spoken (also accompanied by Protestantism).

The Engadine is Romanch-(Ladin) speaking and Protestant, but at its lower extremity, the valley of Samnaun is German-speaking and Catholic. In the Münstertal, the language is Romanch and both religions are found. Of the Italian-speaking valleys, Poschiavo, Mesocco, and Calanca are Catholic, whereas Bregaglia is Protestant (one of the only places where this religion is held by an Italian-speaking population).

PLATE XXVIII.—The Lower Grindelwald Glacier, *circa* 1800, drawn by Birmann, etched by Reinermann, from Coxe's "Travels in Switzerland," Basil, 1802.

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For the sake of convenience, this complicated state of affairs is tabulated below in alphabetical order, as regards the main valleys of the Grisons:

Albula	Romanch	Catholic
Avers	German	Protestant
Bregaglia	Italian	Protestant
Calanca	Italian	Catholic
Chur	German	Protestant
Churwalden	German	Protestant
Davos	German	Protestant
Domleschg	Mixed	Protestant
Engadine	Romanch	Protestant
Ferrera	Romanch	Protestant
Medel	Romanch	Catholic
Mesocco	Italian	Catholic
Münstertal	Romanch	Mixed
Oberhalbstein	Romanch	Catholic
Poschiavo	Italian	Catholic
Prätigau	German	Protestant
Rheinwald	German	Protestant
Safien	German	Protestant
Samnaun	German	Catholic
Schams	Romanch	Protestant
Schanfigg	German	Protestant
Vals	German	Catholic
Vorderrhein	Romanch	Catholic
Vrin	Romanch	Catholic

While the differences in language between the inhabitants of one valley and those of the next are explicable as a result of the Valaisan immigrations,

and of the contact of the inhabitants of Samnaun with Tyrol, whose dialect they speak, the differences in religion seem to be due to the haphazard manner in which the Reformation was accepted. An example of this may be found in the way in which it came about that Pontresina embraced Protestantism. In November, 1549, Pietro Paolo Vergerio crossed the Bernina pass and came to Pontresina. He had been Bishop of Capo d'Istria and Papal Nuncio, as well as a certain candidate for the cardinalate. But having become suspect to the Inquisition, he left Italy, and it so happened that when he arrived at Pontresina that village required a new clergyman. He was appointed, and Pontresina ceased to be Catholic.

After passing the Via Mala and Thusis, Coxe came to Rhäzüns, the other Austrian enclave, where he dined with the Austrian governor. In Chur he witnessed the ceremony of the appointment of a new president of the League of God's House, and then went to visit the tiny sovereignty of Haldenstein.

Coxe next made a tour of the League of the Ten Jurisdictions (of which there were really eleven), crossing the Parpan pass to Alvaneu and passing Vazerol, where the three Leagues swore alliance in 1471. From Alvaneu he reached Davos and the Prätigau, and was highly entertained by the political condition of the inhabitants of Maienfeld, who combined the roles of sovereign and subject. They

PLATE XXIX.—View of the lakes of Thun and Brientz from the summit of the Niesen, from Coxe's " Travels in Switzerland," London, 1791.

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were sovereign as forming one of the Jurisdictions, but they were subject to a bailiff appointed by the Leagues as a result of the previous purchase by the latter of the rights of the Courts of Toggenburg over Maienfeld.

After seeing the baths of Pfäfers, Coxe returned to Chur and made his way up the valley of the Vorderrhein, in the territory of the Grey League, which gave its name to the whole country of the Grisons. At Ilanz, the only walled town in the country besides Chur, he provided himself with some Romanch books, " which have so considerably swelled my travelling library, that if I continue to increase the collection, I must hire an additional horse for the purpose of carrying my baggage of information."

At Disentis he passed the abbey which was founded in 614 by Sigisbert, a disciple of St. Colomban, and he left the Grisons over the Oberalp pass to Andermatt. In a retrospect of the country which he had just left, Coxe mentions that the only investment of the Grisons was a modest £4,000, in English stock ; a touching mark of confidence in British security.

Coxe's book was translated into French by Ramond de Carbonnières, who had made a journey through Switzerland in 1777. This remarkable man, one of the founders of French geology, was Counsellor to the Cardinal de Rohan and was employed by him in his relations with the extraordinary charlatan,

Balsamo or Cagliostro, and was sent on a mission to England to trace the Queen's necklace, immortalised by Alexandre Dumas. Afterwards he did for the Pyrenees what Bourrit and de Saussure had done for the Alps. During the invasion of France in 1814, the Cossacks pillaged his house and burnt all his manuscripts which he was preparing to publish, and afterthe restoration of the Bourbons it was he, as Maître des Requêtes, who paid France's war indemnity. Wordsworth refers to Ramond's translation of Coxe and makes use of it in his *Descriptive Sketches*.

PLATE XXX.—View of the Grimsel Hospice, drawn by Barbier l'ainé, engraved by Michel, from de Laborde's "Tableaux Topographiques, Pittoresques, etc.," Paris, 1777-80.

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CHAPTER XI

MORE TOURISTS

In 1774, an anonymous gentleman (who seems to have been Charles Antoine Pilati) returning from Italy made his journey from Trento to Cles in the Val di Non, and thence through the Val di Sole and over the Passo Tonale into the Val Camonica, from which he reached Tirano over the Passo del Aprica. He records the interesting fact that on this journey he was obliged for his personal safety to hire the services of a band of brigands, called Bravi or Buli, in whose company he was free from molestation by other such bands.

Tirano was in those days a centre of activities of recruiters for the Prussian army. Through the wiles of priests and women, men were inveigled into the recruiters' nets, and then smuggled over the less frequented passes to Lindau on the lake of Constance, and thence to Prussia. Altogether, Tirano seems to have enjoyed a very evil reputation, for a much more serious malpractice is reported there by Wood. It appears that in 1792, a much respected lady of Tirano was discovered to have been engaged for years in the most infamous of all traffics, for the benefit of the priests of Madonna di Tirano. The

discovery had a considerable importance, for it inflamed the inhabitants of the Valtelline and paved the way for the revolt as a result of which that territory, together with those of Bormio and Chiavenna, were lost to the Grisons and passed into the hands of Napoleon's newly formed Cisalpine Republic (1797).

From Tirano, the anonymous gentleman went to Bormio and crossed the Umbrail pass under conditions which were apparently so dangerous, that the muleteers took the precaution of stuffing the mules' bells for fear of their dislodging avalanches. He then crossed the Ofen pass into the Engadine, where apparently the religious tolerance, which Friar Sfondrato had found so distressing, had decreased. He records that the Catholics who visited the baths of St. Moritz were forbidden under penalty of a fine of one hundred écus to say mass even in their own rooms. A corresponding inhumanity seems to have been practised by the Benedictine monks of Pfäfers, whom he describes as perfect tyrants to the guests.

Meanwhile, Windham's account of Chamonix had had its effect, and a number of visitors had been stimulated to go there, including the Duc de la Rochefoucauld in 1763, and de Saussure and Bourrit on several occasions, as will be described later. Here, attention may be paid to the visit made there by Dr. John Moore, the father of Sir John Moore, accompanied by the Duke of Hamilton,

PLATE XXXI.—View of Engelberg, drawn by Perignon, engraved by Danbrun, from de Laborde's "Tableaux Topographiques, Pittoresques, etc.," Paris, 1777–80.

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shortly before 1779. They were staying at Geneva and apparently had Chamonix rammed down their throats by those who had been there, for Moore says : " The wonderful accounts I had heard of the glaciers had excited my curiosity a good deal, while the air of superiority assumed by some who had made this boasted tour, piqued my pride still more. One could hardly mention anything curious or singular, without being told by some of those travellers, with an air of cool contempt, ' Dear Sir, that is pretty well ; but, take my word for it, it is nothing to the glaciers of Savoy.' "

Accordingly, Moore and his friends set out for Chamonix. There was nothing of much note on the journey, except an episode which took place when they had ascended the Montenvers. As they were enjoying the view, some one advanced the remark that it would be much finer from the top of one of the adjacent needles. This excited the ambition of the Duke of Hamilton, who sprang up and bounded over the ice " with the elasticity of a young chamois." Meanwhile the others were afraid that if the Duke got to the top, he would swear that they had seen nothing, so some one rushed after him. But when the Duke had reached a considerable height, " he was suddenly stopped by a part of the rock which was perfectly impracticable (for his impetuosity had prevented him from choosing the easiest way !) " That he should have been baulked is not surprising, for the rock which he had chosen was the Aiguille

du Dru, and it is difficult to avoid the impression that this first attempt to climb it was commenced in all seriousness. After this exploit the party crossed the Tête Noire to Martigny and returned to Geneva.

Another victim of the lure of Chamonix was Goethe, who, with Duke Charles Augustus of Weimar, left Geneva on November 3rd, 1779. On the 5th, he ascended Montenvers and visited Blair's cabin, and on the following day the party crossed the Col de Balme. When on the pass, they had the exciting adventure of meeting a party of smugglers, who were surprised and fired a shot to show that they were armed. Confidence was, however, soon restored by the smugglers recognizing Goethe's guide, and the parties passed one another exchanging mutual greetings. When they had arrived at Martigny, the guide recommended them to bathe their weary feet in a mixture of red wine and clay. The servant-girl at the inn was so haughty and affected, that they could not resist the joke of requesting her to wipe their feet dry, after their treatment.

From Martigny, they visited St. Maurice, and then made their way up the valley to Sion, which did not please them, for they considered that the inn was disgusting and that the whole town with its dirt and the people with their goitres " fearfully disturb the pleasant impression which the scenery leaves." At Leukerbad there was no inn, but " all people have good accommodations." Still, it would

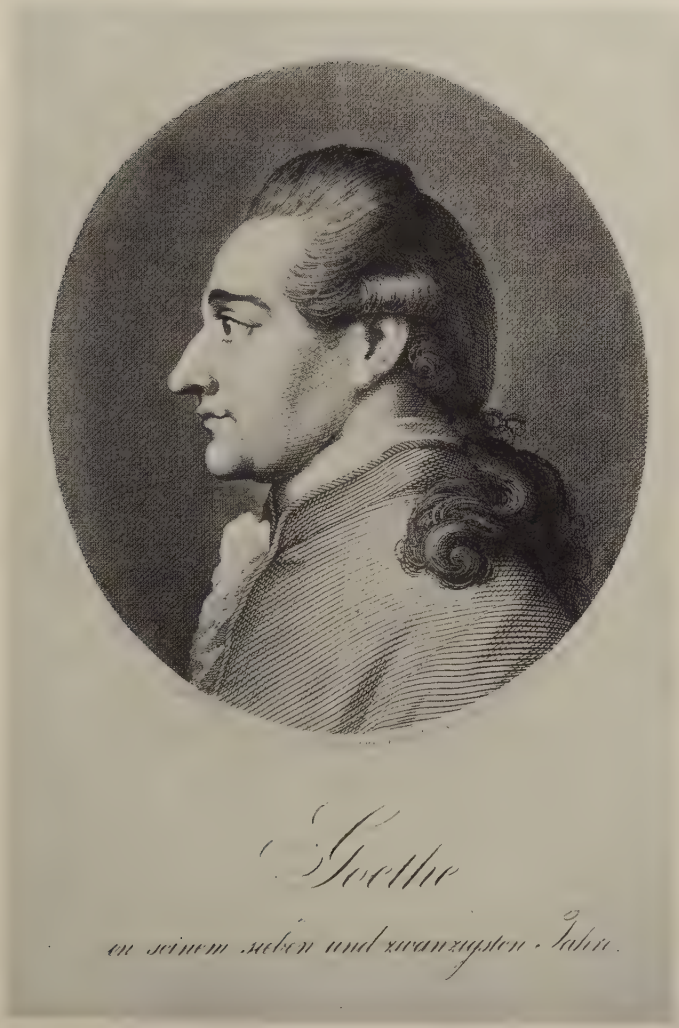

PLATE XXXII.—Goethe, drawn by Kraus in 1776, engraved by Schwerdgeburth, after Chodowiecky. *By permission of the Bodleian Library.*

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seem that these left something to be desired, for Goethe had scarcely got into bed when he felt as if he were attacked all over with nettle-rash. On investigating the trouble, he found that it was due to a swarm of crawling insects.

At Brig, on the other hand, the inn was very comfortable, and what pleased them particularly was the fact that they had a stove, for it must be remembered that it was then getting on towards the middle of November. This fact made them deliberate as to whether they should try to cross the Furka or take the longer but more certain route over the Simplon and St. Gotthard passes. They decided on the former, and at Oberwald they picked up a guide " whose very look and shape inspired confidence." This was possibly just as well, for the snow on the Furka was so deep that they sank in it up to their waists, before arriving at Realp, where they stayed with the Capucins. Thence they reached the hospice on the St. Gotthard, at which point the narrative ends. Eighteen years later, in 1797, Goethe again paid a visit to the Alps, during the course of which he conceived the idea of working up the epic of William Tell, a project which he abandoned to Schiller.

An interesting light on the habit of making an alpine tour for pleasure and education is thrown by the account of the journey of the Baron de Frenilly. In 1787, at the age of nineteen, he was accompanied by his friend d'Orcy and their tutor the Abbé

Brejole. Armed with Linnaeus and Tournefort, they made a tour which vies with those of Scheuchzer in the ingenuity with which it was planned. After visiting the plains, they climbed about on the Säntis, and then went as far as Pantenbrücke, in Glarus. Thence they returned to Weesen, " facing that lovely lake which Daguerre, twenty-five years later, transported near the Faubourg du Temple " (in his diorama).

From Chur, they reached Weissenstein on the Albula pass, " where epicurean travellers halt six times a week to catch trout, which they fry themselves for their luncheon." From St. Moritz they visited the Valtelline, " not by way of Chiavenna, the only practical road, and therefore unworthy of us," but over the Bernina. After a trip on the lake of Como, they reached Chiavenna, and were benighted at Isolato on their passage of the Splügen.

On the remainder of their journey they rushed about as though the Alps were a labyrinth and they were seeking the way out. Over the Oberalp they went, and over the Furka to stay at the Grimsel hospice ; back over the Furka to the lake of Lucerne ; over the Brünig and Grosse Scheidegg to Grindelwald, and over the Gemmi to the Valais. From Martigny they crossed the Col de Balme to Chamonix, where they met " a man of volcanic imagination," M. Bourrit. During dessert, Bourrit entertained his fellow guests with a description of a sunrise. " I believe that I listened to Bourrit for half an hour

without falling asleep. But at last, fatigue got the better of me, and I know not if he succeeded in getting the sun to rise."

Marc Théodore Bourrit, Precentor of the Cathedral of Geneva, was on one of his innumerable journeys when de Frenilly met him at Chamonix. From Chamonix, Bourrit made a number of excursions on to the glaciers, and on one occasion was the victim of a curious misfortune. He was going on an expedition up the glaciers with a friend, when they met two strangers who asked if they might accompany them. Eventually they all got down on to the ice of the Mer de Glace, and Bourrit led. After the first halt, the others seemed to follow him, but in reality they took advantage of the cover from view afforded by the irregular masses of ice to turn back surreptitiously to Montanvert. Bourrit's friend did not realise that he was being led astray, and was indignant when he found himself back at Montanvert, and Bourrit deserted on the glacier. It was some time before Bourrit discovered that he had been left, and when he saw them retreating he thought that some one had had an accident. He was eventually rescued from his solitude by his friend, who shamed one of the guides into returning for him. The reason for the desertion was apparently that the others had overeaten themselves at the first halt, and Bourrit vowed that he would never again start on expeditions with strangers. On several of his trips, he was accompanied by his dog, who was

thus a forerunner of Coolidge's Tschingel in the way of canine alpinists.

Bourrit made a number of attempts on Mont Blanc, which will be related in connexion with those of de Saussure in the next chapter; but now an account must be given of his discovery of the way up the Buet from Chamonix. It will be remembered that after several false starts, de Luc succeeded in ascending this mountain in 1770. In 1775, Bourrit's ascent was attended by an even greater number of trials and failures.

The first difficulty was to identify the Buet from the south, for, as is natural, the peak which can be recognised from a distance, becomes lost on closer approach. Eventually, the Buet was identified from the Col de Balme as the peak overlooking Vallorsine. Bourrit promptly went to Vallorsine to try to find any one who might know the way up it, but nobody did. So he determined to return to Cluse and thence go to Sixt, ascend the mountain by de Luc's route, and descend to Vallorsine. But when he got to Les Houches on the way to putting his plan into execution, the clergyman of the place, who had previously held the cure of Vallorsine, told him of a man who had once guided him over to Sixt. So back Bourrit went to Vallorsine, to try and find the man.

At Vallorsine, matters were made difficult by the fact that nobody knew of the Buet, but they decided to make for the Berard, behind the Aiguilles Rouges.

PLATE XXXIII.—Marc-Théodore Bourrit, painted by St. Ours, drawn by Etienne Rey, lithographed by H. Brunet & Co. *By permission of the Bibliothèque publique et Universitaire, Genève.*

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From there, they could see a mountain which the inhabitants called la Mortine, and from which they hoped that they would be able to see the Buet. Of course, the Buet and la Mortine turned out to be one and the same, but they could not reach it that day owing to the clouds. The season was now far advanced, and Bourrit decided to return to Geneva. At Sallanches, he met Sir George Shuckburgh, who was on his way to Chamonix. And as the weather cleared up during the night, Bourrit decided to turn round once more and return to Vallorsine, and this time he succeeded in ascending the Buet.

Customs formalities do not seem to have been very strict in those days. Bourrit states that the customs officers were at Vallorsine, which is on the way from the Valais over the Tête Noire, but that they did not examine travellers coming to Chamonix, for most often the latter only carried barometers, thermometers, and field-glasses, and, " besides, it would be enough to disgust travellers, mostly persons of condition, tired and hot from their journey and anxious to arrive without delay at Chamonix."

From Chamonix, Bourrit made the tour of Mont Blanc. Passing over the Col de Voza, he reached St. Gervais and slept at les Contamines. The next day he crossed the Col du Bonhomme to les Chapieux, and from there over the Col de la Seigne he reached Courmayeur, in the Allée Blanche. There,

apparently, there was a sort of academy run for the women, who were left alone during the winter months, for the men went down into the valleys to look for work. This explained the fact that the women were " très lettrées."

After an expedition to the Cramont, Bourrit passed through Aosta and reached the hospice of the Great St. Bernard, which he compared to Noah's Ark, " perched on the mountains of Armenia." The date of the foundation of this establishment by St. Bernard of Menthon, is uncertain, but a hospice is mentioned in 859, and Charlemagne's uncle, Bernard, crossed the pass in 773. It was, of course, well known to the Romans, of whom numerous remains were found. The monastery was richly endowed, and possessed property in England. Hornchurch in Essex was given to it by Henry II, but it passed out of their hands when William of Wykeham gave it to New College, Oxford. Bourrit says that 8,000 people crossed the pass annually, and that on one of the nights when he was there, there were 561 travellers. They consumed four oxen, twenty sheep, and three sacks of wheat. Accompanied by one of the monks, M. Murith, Bourrit ascended the Pain de Sucre, and also visited the glacier de Valsorey.

Martigny was the scene of the start of a comedy, in which Bourrit played a heroic part. Seeing a party of two men and two ladies with their servants, getting ready to cross the Tête Noire to Chamonix

PLATE XXXIV.—View of the Glacier des Bossons and Mont Blanc from Chamonix, from Bourrit's "Nouvelle Description des Glacières," Genève, 1787.

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on their horses, Bourrit approached, and the following conversation took place. Bourrit began :—

" Excuse me, but are you thinking of going to Chamonix ? "

" To Chamonix or elsewhere."

" I only ask because your horses may cause an accident."

" There is no fear of that."

" Perhaps they have never experienced such a difficult path ? "

" Perhaps not."

" The road is so bad."

" That is of no consequence."

" But your ladies ? "

" It is of no consequence."

" But . . . "

" Of no consequence, I tell you."

Bourrit turned his back and let them depart. Soon afterwards he followed them, and found them completely stuck in the pass of the Tête Noire. The horses would go neither forward nor back, the men were in a state of perspiration, and the ladies in distress. As soon as they saw Bourrit, they were abject in their apologies to him, and Bourrit slyly confesses that he was led to choose the Tête Noire instead of the Col de Balme, suspecting that he might be called upon to play the part of the gallant rescuer. Besides, he gives evidence elsewhere of a penchant for the company of the fair sex, which indeed was one of the reasons why he did not stay at the Great

St. Bernard as long as he had intended. Anyhow, he soon got to work with the horses, and escorted the party to Vallorsine.

After a rest, they continued on their way, and Bourrit showed them the gorge leading up to the Buet. This caused a flood of questions :

" Was that the way discovered by Mr. Bourrit ? "

" Precisely."

" Do you know Mr. Bourrit ? "

" Very well indeed."

" We were told in Lausanne that we would find him at Chamonix."

" I happen to know that he arrives there to-night."

" We would be delighted to meet him."

" Nothing could be easier."

" We will tell him how deeply we are indebted to you."

" That is not worth mentioning."

At Chamonix, Bourrit had supper prepared for them, and they took him for the innkeeper. They begged him to ask Mr. Bourrit to give them the honour of his company at breakfast. Next morning, as he did not appear, they repeated their request to the servants, and the comedy ended with the disclosure of his identity.

In 1778, Bourrit paid a visit to the Valais, and records a number of interesting features concerning its lateral valleys. Accompanied by his friend Murith, who in the following year was to ascend Mont Velan, Bourrit went up the Vallée de Bagnes

for the purpose of seeing the glaciers at its head. These glaciers, to which he gives the name of Chermotane, he regarded as extending continuously all the way to Monte Rosa. He also describes the Col de Fenêtre de Balme, over which he believed that Calvin escaped from Aosta, the inhabitants of which would have nothing to do with him.

Proceeding up the Valais, Bourrit came to the Gemmi, which he crossed to Kandersteg, and he tells a remarkable story of the journey which M. Polier de Bottens, Doyen of Lausanne Cathedral, made in 1742 from Kandersteg to Lauterbrunnen. This gentleman, accompanied by the schoolmaster of Kandersteg, who acted as guide, started on August 17th and went, horse and all, over the Tschingel pass!

Bourrit returned to the Valais, and he draws attention to the great hospitality and kindness of the inhabitants, whose virtuous customs were also praised by Jean-Jacques Rousseau with words which he placed into the mouth of St. Preux, the hero of his novel-autobiography *La Nouvelle Héloïse*. Bourrit gives a very interesting account of the inhabitants of the Val d'Anniviers, and noticed that they were nomads. He describes whole villages moving off to another place, accompanied by their priest, as is still the case to-day. Bourrit considered it probable that they might be a remnant of the Huns. The modern view as expressed by Keller is that they are the remains of a Celtic tribe which have preserved some of the old Celtic customs.

One of these is the funeral feast. Each family keeps a barrel of wine which is handed on from one generation to another. When a member of the family dies, the mourners knock on the coffin and toast the departed in this wine with the words " au revoir." Their language seems to be related to Provençal. The following is their version of the Lord's Prayer.

> Nôthri pâre qui cveithè ou siel ; Vôthri nom ssi sanntifia ; Vôthri roiome no-z-aviène, Vôthra volonta chi feyti inn la terra come ou siel ; Donna no vonek nôthri pang de to lè dz'ôr ; Perdonnáno nôthre-ch-offense daineche come no le perdonéa chlo qui no jean offencha ; No lascie paschoncombaba à la tentacion, ma delivro no dou ma.

Bourrit left the Val d'Anniviers for the Turtmanntal, apparently by way of the Meiden pass, and then continued up to the Rhone glacier. He climbed the Nägelisgrätli to get to the Grimsel hospice, which he calls the most repulsive house in the Alps, and afterwards crossed the Furka to Hospenthal, where, in agreement with Sulzer, he found " good people, good board, and good beds." After a visit to the hospice of the St. Gotthard, where he regrets that the Capucins do not minister more to the needs of the travellers than to say mass, he turned down the Reuss to Lucerne.

From Lucerne, Bourrit reached Thun by passing through the Entlibuch, and came to Unterseen (Interlaken). He and his companion started off to Lauterbrunnen, but they lost the way before they

PLATE XXXV.—View of the Glacier of the Rhone, from Bourrit's " Nouvelle Description des Glacières," Genève, 1787.

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had gone any distance, and had to get a guide. All went well, and they walked along enraptured at the beauty of the Jungfrau when they suddenly discovered that their guide had vanished. This did not alarm them, however, for they knew that they were nearly at Lauterbrunnen, and they had been warned to look out for a metal church steeple. So they continued to walk along, past a very high waterfall, and eventually into a wood, when night began to fall, and they realised that they were lost. Then they saw what they took to be the metal church steeple and went in its direction, only to find that it was a waterfall. At last they saw a light, and rushed towards it. It was a cottage, but its inmates would have nothing to do with them until Bourrit hit upon an ingenious method of commanding respect. He rapidly drew a picture of a clergyman in his cassock, and showed it to the peasant, who, without hesitating, led them back to Lauterbrunnen, through which they had actually passed earlier in the evening. The high waterfall was none other than the Staubbach.

In the valley of Lauterbrunnen, Bourrit found what he considered to be abundant evidence of the recent expansion of the glaciers; the village of Ammerten had been much larger, and Mr. Christen had found a millstone near the source of the Lütschine. Further, the name Sichellauenen was supposed to allude to the sickle with which the harvest used to be reaped where the glaciers now were; "nunc glacies est ubi seges fuit!"

Bourrit gives one of the first accounts of the passage of the Kleine Scheidegg, which was reputed not to be easy. On the top, he had a pleasant surprise, for 300 young men and maidens of Grindelwald had gathered there to watch a wrestling match. Grindelwald produced on him the felicitous impression of uniting the qualities of "cleanliness, simplicity, and bliss."

In 1787, Bourrit accomplished the passage of the Col du Geant, and in the following year he made his last attempt on Mont Blanc, accompanied by his son, Mr. Woodley, and Mr. Camper, a Dutchman. The party narrowly escaped disaster in a storm, and only with the greatest difficulty did Bourrit "in his turn reach the summit." (almost!)

Bourrit enjoyed the esteem of several princes of the earth. It was Frederick the Great who directed Prince Henry of Prussia not to omit to visit the "Historian of the Alps," and his correspondents included the Princess of Anhalt-Dessau and the Intendant of the King of Sardinia, and many other notabilities, whose letters concerning his earlier works are proudly reproduced in his last book as testimonials! One of his most interesting achievements was to obtain a dispensation from fasting for alpine tourists during their tours.

The last in date but not in interest of the travellers of which this chapter treats is William Wordsworth. His first journey has many points of similarity with that of Albrecht von Haller, for, like him, Words-

PLATE XXXVI.—View of the Lower Grindelwald Glacier, from Bourrit's "Nouvelle Description des Glacières," Genève, 1787.

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worth started on his alpine tour in his student days, accompanied by a friend, and was moved to write a poem on it shortly afterwards. (*Descriptive Sketches*, and, later, Book VI of *The Prelude*.) His later alpine tour falls outside the scope of this book.

Wordsworth's journey occupied his long vacation from St. John's College, Cambridge, in 1790, and it seems that his expedition was regarded as unprecedented by his friends and College authorities. His companion was Robert Jones, and the pair started off each with £20 and their luggage tied up in a pocket handkerchief. After passing through France, which was in the first throes of the Revolution, the two wanderers entered Switzerland and reached Lausanne on August 9th. From here they went on to St. Maurice in the Valais and over the Col de Balme to Chamonix. The view from the pass produced a more profound impression on the future poet laureate than it had on Coxe five years before, and moved him to write :

> That very day
> From a bare ridge we also first beheld
> Unveiled the summit of Mont Blanc, and grieved
> To have a soulless image on the eye
> That had usurped upon a living thought
> That never more could be. The wondrous Vale
> Of Chamouny stretched far below, and soon
> With its dumb cataracts and streams of ice,
> A motionless array of mighty waves,
> Five rivers broad and vast, made rich amends.

On August 14th they returned to Martigny and started off up the Valais. They went on foot, and

in Wordsworth's own opinion, " A march it was of military speed." After passing Brig they ascended the Simplon, and were broken-hearted to learn that they had reached the summit, " for still we had hopes that pointed to the clouds." Very different sentiments were those emitted in this identical place by poor John Evelyn.

The Lago Maggiore provided more raptures for Wordsworth.

> Locarno ! spreading out in width like Heaven
> How dost thou cleave to the poetic heart.

It is scarcely pardonable, yet irresistible, to draw attention to the aptness of these lines to present conditions when " politic " is substituted for " poetic."

From the Lago Maggiore, Wordsworth and Jones passed on to that of Como, which they followed to its head. At Gravedona they were misled by the clocks into getting up in the middle of the night, and got lost in a wood, where they were cruelly prevented from sleeping out the rest of the night by the bites of insects. On the following day they parted company for a short time, for Wordsworth stayed at Samolaco while Jones went on to Chiavenna. Their way next lay over the Passo della Forcola to Soazza in the Val Mesocco, at the head of which they crossed the St. Bernardin pass to Splügen in the valley of the Hinterrhein. The Via Mala then took them to Thusis, whence they reached Reichenau

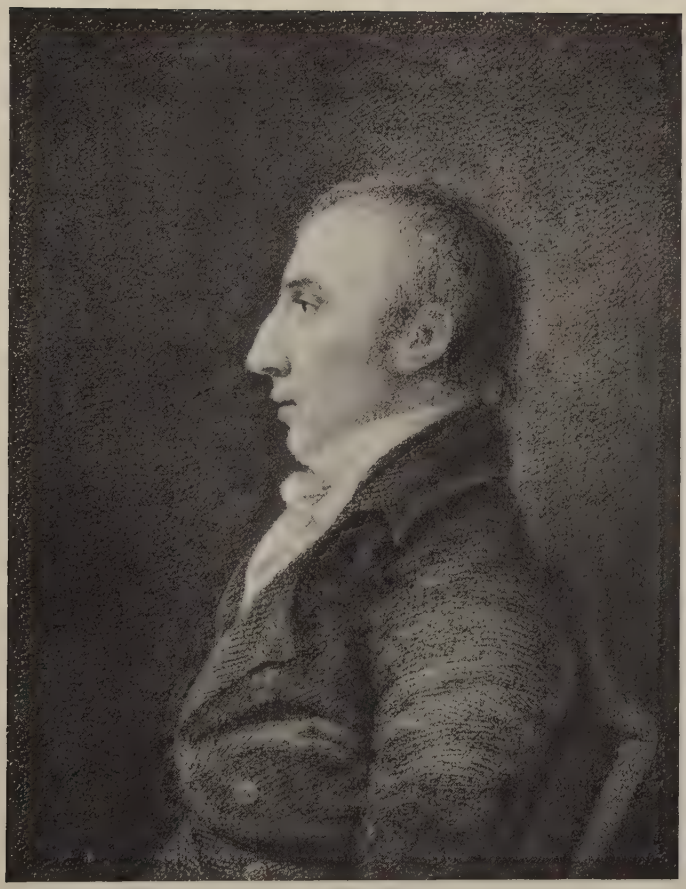

PLATE XXXVII.—William Wordsworth, by Hancock. *By permission of the National Portrait Gallery.*

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and Flims, in the valley of the Vorderrhein. This they ascended to its head and crossed the Oberalp pass to the Urserental. Then,

> From the green vale of Urseren smooth and wide
> Descend we now, the maddened Reuss our guide

to Altdorf and the lake of Lucerne, which they soon left for that of Zürich. Thence they visited Einsiedeln and Glarus, and reached the lake of Constance by way of Wallenstadt and Appenzell.

Not content with their already extensive alpine tour, the indefatigable pair, who had descended the Rhine to Schaffhausen, returned to Lucerne, and made their way to the Brünig pass, past Sarnen and Lungern. Referring to these, Wordsworth wrote : " Nothing that I ever saw in Nature left a more delightful impression on my mind than that which I have attempted, alas, how feebly ! to convey to others in these lines." On September 13th they arrived at Grindelwald, whence Wordsworth wrote to his sister the letter in which much of the information concerning the journey is contained. Their last alpine ramble, on the following day, was to be in the Lauterbrunnen valley, and no more fitting conclusion could be given to this chapter than by quoting Wordsworth's feelings on leaving the Alps, as expressed in the letter just mentioned.

" We are now, as I observed above, upon the point of quitting these most sublime and beautiful parts ; and you cannot imagine the melancholy

regret which I feel at the idea. I am a perfect enthusiast in my admiration of nature in all her various forms ; and I have looked upon, and, as it were, conversed with, the objects which this country has presented to my view so long, and with such increasing pleasure, that the idea of parting from them oppresses me with a sadness similar to what I have always felt in quitting a beloved friend."

CHAPTER XI

THE GREATEST ALPINE TOURIST

It is true to say that Horace Benedict de Saussure was keenly interested in everything he saw; the rocks of the earth's crust, the nature of electricity and heat, why the tops of mountains and the bottoms of lakes are cold, why the inhabitants of some valleys suffer from goitre; all these questions and many more are treated in his *Voyages dans les Alpes*, of which Mr. Justice Wills said that it was "one of the most delightful books of travel ever published."

Of the numerous journeys which de Saussure made, the narratives of seven are given in his book, all of them starting from his native town of Geneva. Although it appears that on one of these he was accompanied by his wife, that was exceptional, and to the complaints which that lady made about his absenting himself from home so often, de Saussure replied in a letter which is quoted by Lunn, and which runs as follows: "In this valley, which I had not previously visited, I have made observations of the greatest importance, surpassing my highest hopes; but that is not what you care about. You

would sooner—God forgive me for saying so—see me growing fat like a friar, and snoring every day in the chimney corner, after a big dinner, than that I should achieve immortal fame by the most sublime discoveries at the cost of reducing my weight by a few ounces and spending a few weeks away from you." But conjugal happiness was not disturbed by his perseverance, and on one of his later journeys, Mme. de Saussure herself was one of the proud spectators from Chamonix when her husband ascended Mont Blanc.

The first journey which de Saussure describes is the tour of Mont Blanc which he made in 1778, accompanied by J. Trembley and M. A. Pictet, both scientists of distinction. Pictet was responsible for making the barometric observations. Trembley looked after an instrument that de Saussure had had constructed, to measure the strength of a magnet under different conditions, and de Saussure himself specialised in studying the geology of the districts through which they went. He had done the journey twice before, in 1767 and 1774, while to Chamonix he had already paid seven visits.

They left Geneva at six in the morning on July 11th, 1778, and took the usual route to Chamonix through Sallanches (where "the inns are not the best in Savoy"), and arrived at noon on the following day. They did not, however, stay at Chamonix on this occasion, but went on by the Col des Montets to sleep at La Couteraie, at the foot of Mont Buet,

HORACE BÉNÉDICT DE SAUSSURE
(Géologiste, Minéralogiste et Physicien),
Professeur de Philosophie et de Physique à Genève,
Fondateur de la société des Arts de cette ville,
Membre associé de l'Académie des Sciences de Paris.
Né à Conches près de Genève le 17 Février 1740.
Mort à Paris le 22 Janvier 1799.

PLATE XXXVIII.—Horace Benedict de Saussure, painted by St. Ours, engraved by Ambroise Tardieu. *By permission of the Bibliothèque publique Universitaire, Genève.*

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which they ascended on the 13th by the route which Bourrit had discovered. De Saussure had already been there in 1776, and on that occasion he conceived the idea of making a circular drawing of all that was to be seen from the summit of the Buet. He imparted this idea to Bourrit, whom he met soon afterwards, and that gentleman then hurried up the mountain to execute it. The result is a primitive yet effective kind of panorama.

The summit of the Buet in 1778 provided the trio of scientists with plenty of material for observations. There was the height of the Buet itself, and the height of Mont Blanc to be taken with a sextant which Pictet had obtained from Mr. Ramsden, in England, and as a result of which it was clear that Mont Blanc was the highest mountain yet measured in the Old World. Attention was also paid to the effect of altitude in producing fatigue and breathlessness, and de Saussure performed a number of experiments on the composition of the air, by testing it with Dr. Priestley's " nitrous air."

With regard to glaciers, de Saussure accepted Gruner's view that the cause of their movement was to be found in their weight, which made them slide down their valleys, being lifted off the bottom of the latter by the water underneath them. While it is true that gravity is a potent factor in glacier-movement, Forbes showed that no theory was adequate which did not take into account the fact that glaciers become distorted and moulded to their

beds, and Forbes also showed that the idea that the friction between the bottom of the valley and the bottom of the glacier was overcome by the melting of the undermost ice of the latter was illusory. The fact is that owing to the property of regelation (or freezing together again) of its ice after being broken up during its descent, a glacier *simulates* a viscous or plastic substance as Tyndall showed. The notion of plasticity was first put forward by Bordier in 1773, as a result of his travels in Savoy in the previous year. Bordier's book is usually erroneously attributed to Bourrit. But to return to de Saussure, while he interpreted many features of glaciers correctly, his explanation of the medial moraines (the line of rocks running down the middle of a glacier, on its surface), is hopelessly wrong. As Agassiz showed later, a medial moraine is formed from the two innermost lateral moraines of two glaciers which flow together into one. This is very obvious at the junction of the Finsteraar and Lauteraar glaciers to form the Unteraar glacier, on which Agassiz worked. But on the Mer de Glace, with which de Saussure was most familiar, the large amount of rocky debris on the right hand side of the glacier almost connects the medial moraine with the right bank, and it seems possible that this fact suggested to de Saussure the erroneous view that medial moraines were formed by the rocks edging out little by little from the side of a glacier towards its centre.

After their ascent of the Buet, de Saussure and his companions made an excursion on the Mer de Glace. On a previous occasion (1760), de Saussure had climbed the Brevent, and there he discovered what he called " red snow," which as far as he knew had not been observed before. The colour is due to the presence in the snow of countless minute one-celled plants, each of which has a red spot. It is greatly to de Saussure's credit that by means of the simple experiments which he performed, he recognised the vegetable nature of the phenomenon.

On July 17th, de Saussure and his friends started from Chamonix for their tour of Mont Blanc, by the Col du Bonhomme and the Col de la Seigne, to the Allée Blanche. On the Bonhomme, one of the mules stumbled and turned three somersaults, and was only prevented from turning a fourth and last by the presence of mind and strength of the muleteer who caught it by the tail. Fortunately, none of the precious instruments which it was carrying were damaged. Of the inhabitants of the Allée Blanche, de Saussure said that they were " de très bonnes gens, ils commencent pourtant à prendre un peu de cette pente à l'éxageration et la jactance que l'on reproche aux habitans des pays méridionaux."

Below Courmayeur is Villeneuve, and the first time that de Saussure came there, he had a shock. It happened that all the " reasonable " people were away working in the fields, and the village was

occupied only by the cretins. De Saussure had not yet become familiar with the outward signs of this condition, and he asked one of them for the name of the village. Receiving no answer, he repeated the question to a second, and then to a third, with the same result. The stupid astonishment and ghastly appearance of the poor people were frightening, and de Saussure felt as though some evil spirit had bewitched the whole place.

The return to the Valais was made by the Great St. Bernard, and at Bourg St. Pierre, which is on the way to Martigny, de Saussure noticed a Roman inscription, which is still visible, and which is of some interest. It runs : " Imp. Cæsari Constantino P. F. Invicto Aug. Divi Constantini Aug. Filio Bono Reipublice Nato F. C. Val XXIIII." Since Antonine's itinerary places the 24th mile at the summit of the pass, it would seem that this stone had originally been set up there, before being moved to Bourg St. Pierre. The stone which Simler and others had described at Martigny, and which Scheuchzer had failed to find, bore an inscription which was nearly identical, but its interpretation presents a problem. The expression " F. C. Val " on the inscription at Bourg St. Pierre is interpreted by de Saussure to mean " Forum Claudii Vallensium," which is supposed to have been the name for Martigny. The inscription which was at Martigny is reported by Tschudi, Stumpf, and Simler, to have borne the expression " For. Cl. Val.," but

all these authors translate it: "Fortissimo, Clementissimo, Valentissimo." The other construction would fit equally well, and be more appropriate.

On his way to Geneva, de Saussure noticed some polished rocks which, from their resemblance to the backs of sheep, he called "roches moutonnées": the term applied to them to-day. But de Saussure did not recognise the causes of their formation, and it was left to de Charpentier to show that the polishing was due to the action of the glaciers.

The second journey described by de Saussure, and which he made in 1780, does not fall within the scope of this book, for it was not in the central Alps. He went from Geneva over the Mont Cenis to Turin and Genoa, and then along the coast, past Nice, where there was already a Faubourg des Anglais, and Cannes, which consisted of two or three streets, entirely inhabited by fisherfolk.

On his third journey, de Saussure left Geneva alone with a servant on July 3rd, 1783. He went along the shore of the lake of Geneva as far as Vevey, and then crossed the Col de Jaman to la Tine and Chateau d'Oex, whence he reached Zweisimmen and Spiez on the lake of Thun. After measuring the depth and the temperature of this lake, he went past Interlaken and repeated the performance on the lake of Brienz. The heat was oppressive, and de Saussure felt indisposed, so he made his way slowly to Meiringen, not omitting to notice the curious S-shaped outcrop of strata near Brienzwyler,

which cannot fail to strike any traveller between Brienz and Meiringen.

From Meiringen he set out for the Grimsel, and at Guttannen he was much amused by an inscription which the innkeeper had cut in the ceiling of his guestroom. This inscription was in Italian, the place being regularly frequented by Italians engaged in the traffic over the Grimsel pass, and ran like

FIG. 33.—View of the Glacier of the Rhone.

this : " Il passato mi castiga ; il presente mi dispiace ; il futuro mi spaventa " (" The past depresses me ; the present displeases me ; the future appalls me "). De Saussure rightly says that the sentiments expressed in these words are inappropriate for a Swiss inn, and unkindly remarks that they are more suitable for an Englishman devoured by the " spléen."

At the Grimsel hospice he had a bad night. His

room smelt so much of cheese and wine that he went outside to sleep on some hay. But it was fermenting, and gave him a bad headache, so he got up and walked about, and was grateful for the opportunity of watching from a distance the most memorable thunderstorm which Geneva had experienced.

He descended the Grimsel to Obergestelen, whence he paid a visit to the Rhone glacier. There he had previously, in 1776, accompanied Lord Palmerston, and in 1775 he had discovered the hot springs at the foot of the Maienwang at Gletsch. These springs were regarded by the inhabitants as the true source of the Rhone, although the quantity of water which they supply is very much less than that which issues from the Rhone glacier. Many travellers have considered it ridiculous to glorify these springs with the name of source of the Rhone, and to deny this honour to the body of water from the glacier. But it may be pointed out that the German word *Quelle* means not only source but spring, and the inhabitants even to-day are very particular to distinguish between " Quellenwasser " (spring water) and " Gletscherwasser " (glacier water), a fact which the derisive critics do not seem to have realised.

After leaving the Rhone glacier, de Saussure went up the Egginental, and instead of turning to the east over the Nufenen pass, he went straight on over the Gries pass into the Val Formazza. The Gries pass was also visited about this time by Count

de Morozzo of Turin, according to whom it seems that the way across the glacier was marked with stakes. In the Val Formazza de Saussure noticed that the inhabitants spoke German of the Valaisan dialect, which they still do, being the descendants of the thirteenth century Valaisan colonists, some of whom, as already mentioned, were responsible for the German-speaking " islands " in the Grisons. Having passed the Tosa falls, de Saussure arrived at Zumsteg or Al Ponte. From there he crossed the Furca del Bosco (Criner furka), which was such an undertaking that he had to employ a gang of men to relieve the mules of their loads, in many difficult places. Bosco is another German-speaking village, colonised from the Val Formazza, and it enjoys to-day the singular position of being the only German-speaking community in the Swiss canton Tessin. At Cerentino, where he spent the night, the inn was " affreuse," and he was very surprised to find that the dinner plate was of silver, the linen damasked, and the bed clean.

Going down the Val Maggia, de Saussure arrived at Cevio, the residence of the bailiff who governed this territory for the twelve cantons. This functionary watched out of his window as de Saussure took readings with his barometer, and invited him into his house. There he showed him a sort of planchette, which took the form of a disk at the end of a string which he held in his hand while the disk was dipped into a tumbler. The shaking of the hand,

of course, caused the disk to rap on the side of the glass, but the worthy bailiff considered that the raps were the answers to the questions in the mind of whoever was holding the string. This was how he got all his news, such as the number of votes polled by the candidates at the municipal elections at Basle. After questioning de Saussure about his work, he asked him what he thought of the orthodox estimate of the age of the world given in the almanac. De Saussure answered that the study of geology attributed a slightly greater antiquity to the earth, whereupon the bailiff triumphantly said: "Ah! my oracle has told me the same thing, for the other day I had the patience to count the number of raps while thinking of the age of the world, and I found it to be four years older than is stated in the almanac!" This fortunate agreement of de Saussure's opinion with the bailiff's oracle put the former high in the esteem of the latter, and in spite of the heat the bailiff himself accompanied the traveller to the ferry over the Maggia.

From Locarno, de Saussure turned up the valley of the Ticino, past Bellinzona to Airolo, whence he ascended to the hospice on the St. Gotthard. There, on a previous occasion (July 25th, 1775), he met Mr. Greville, who had driven up the pass in his phaeton, which exploit cost him no less than 18 louis spent on the gang of men which he had to employ to help the carriage over the steep places. On the St. Gotthard, de Saussure indulged extensively in

collecting rock specimens, and one of the monks confided to a friend of his that they thought that his accumulating such material was a form of madness ; that he seemed to be a decent sort of man and that it was most unfortunate that he should suffer from such a ridiculous mania as to pick up all the stones he saw, fill his pockets with them, and load them on to mules.

From Hospenthal, it is interesting to note that de Saussure went to Zumdorf to visit the Abbé Réglin and see his collection of minerals. To-day, unfortunately, there is nothing to visit at Zumdorf. He then descended the valley of the Reuss to Lucerne, where he met General Pfyffer, and thence returned to Geneva.

On his first visit to Chamonix in 1760, de Saussure promised a handsome reward to any one who discovered a way to the top of Mont Blanc, but it led to no result. In 1775, four guides made an unsuccessful attempt by the Montagne de la Côte. In 1783, three other guides tried again, but with no better fortune, and Bourrit himself, who made an attempt later in the same year, was driven back by a storm. In 1784, Bourrit tried again, and made some progress until he and his guides were overcome by the cold and had to return. The following year, de Saussure and Bourrit tried together. This was an important affair, and they went up as a caravan seventeen strong to sleep at a hut at the base of the Aiguille du Gouter. The expedition proved

PLATE XXXIX.—View of Mont Blanc showing de Saussure's route to the summit.

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successful as far as the making of scientific observation was concerned, but not in discovering a way to the summit of Mont Blanc.

Then, in 1786, seven guides made an attack on the mountain, and having failed, they returned, except Jacques Balmat, who, being apparently on bad terms with the others, walked apart and stayed on the mountain all night. Next morning, before descending, he prospected about, and found a way which seemed promising. And so it was, as Balmat and Paccard showed later in the same year when they made the first ascent of Mont Blanc. The news was immediately sent to de Saussure, but bad weather prevented him from making the ascent that year.

In 1787, therefore, de Saussure made what he called his fourth journey, which was to the summit of Mont Blanc. He started from Chamonix with a servant and eighteen guides, headed by Jacques Balmat. They slept that night at the top of the Montagne de la Côte, and after crossing the glacier, passed the next night encamped on the snow. Then, on the following day, they reached the summit, and de Saussure was at last able to realise his long-cherished dream of making observations from the highest point in Europe. The party stayed on the summit for four and a half hours, and the time was well spent. Readings were taken of the barometers, thermometers, hygrometers, and electrometers; water was boiled and its temperature taken; the

magnetic variation was tested, and members of the party had their pulses taken. Altogether, a little laboratory with a tent and a table was set up, and during the whole time the party suffered severely from the difficulty of breathing at the high altitude.

When the work was finished, they descended and passed yet another night on the snow, before getting back to dry land. There they met Bourrit, who wanted to engage the guides to return to the summit at once with him. This they rightly refused to do, and the party returned to Chamonix in triumph.

While de Saussure was delighted with the results which he obtained on the summit of Mont Blanc, he regretted that all the observations made at great elevations had been during day time, and in order to get a truer picture of the state of affairs, he was anxious to find some place where he could spend the whole twenty-four hours at a high altitude.

For this purpose, his choice fell on the Col du Géant, between Chamonix and Courmayeur. After having sent some men on in advance to build a hut, de Saussure and his son started from Chamonix on July 2nd, 1788. Soon after their arrival on the Col, they had to contend with a fierce storm, and the hut not being snow-proof, they slept in a tent. When all the instruments were set up, they started a routine which they kept up for a fortnight. De Saussure got up at seven a.m. and went to bed at midnight, while his son got up at four a.m. and finished his day at ten.

The observations extended over the flora and fauna, the barometer, thermometer, hygrometer, electrometer; they observed the diurnal variation of the compass, and compared the strength of the magnetic field with that in other places; the magnetometer was also brought into use, and they did not neglect their own physiology as regards their respiration and pulse rates. Altogether, it was a remarkable achievement, for men with scanty equipment and for seventeen days without intermission at a height of 11,060 feet.

On July 19th, the expedition was brought to a close (by the guides pretending that there were no more supplies), and the party descended to Courmayeur, and returned over the Col Ferret to Martigny and so to Geneva. The Col du Géant had apparently been a frequented pass. It is mentioned in a report drawn up by Arnod for the Duke of Savoy in 1694, as one of the passes over which an entry might be effected into Piedmont. This inquiry was instigated by the fact that the Waldenses who had been expelled from the Duchy in 1687 and had taken refuge in Switzerland, effected their "Glorious Return" in 1689. The Duc de la Rochefoucauld records that on his visit to Chamonix in 1763, he met the last man who had made the passage of the Col du Géant before the opening of a large crevasse had made it impassable. According to Coolidge, the first authentic traveller to cross it was Mr. Hill, in 1786, while Bourrit crossed it in 1787.

De Saussure's sixth journey, which was devoted to the tour of Monte Rosa, is one of the most interesting. He and his son left Geneva on July 15th, 1789, the day after the dramatic events in Paris. At Martigny they met their guides who had come from Chamonix, bringing mules with them. Two of these were loaded with instruments. There was a glass sphere, a foot in diameter, for measuring the density of the air, a weighing machine, a tent to use it in, a pendulum with a rod six feet long, three barometers, two compasses, and a plane-table

Going up the Valais as far as Brig, they crossed the Simplon pass to Domodossola, and then turned up the Val Anzasca to Macugnaga. At first, the innkeepers were frightened of this suspicious looking caravan, and it was only with the help of the priest that they succeeded in obtaining quarters. They measured the height of Monte Rosa, and recognised it as the second highest mountain in the Alps. They also made an excursion through the Alpe di Petriola to the Pizzo Bianco.

After a stay at Macugnaga, they returned down the Val Anzasca to Ponte Grande, and crossed the Col d'Egua to Carcofaro, whence they reached Rimasco in the Val Sermenta. From there they continued to Balmuccia and Scopello in the Val Sesia. At Alagna, they noticed the remarkable fact that the inhabitants, like those of several other villages at the foot of Monte Rosa, although on the south side of the Alps and surrounded by Italians,

T. IV. Pl. V.
Le Mont Rose vu des environs de Macugnaga.
a Cime la plus élevée. b Cime du Pic blanc. c Passage en Vallais. d Vallée de Macugnaga

FIG. 34.—View of Monte Rosa from Macugnaga.

were German-speaking, as they still are. As in the other cases already mentioned, they were Valaisan colonists, and Le Conte relates that in 1250 the Counts de Blandrate transplanted colonies from one side of the mountains to the other. So, while Valaisans were planted at Macugnaga, the former inhabitants of the place were put at Saas. In this way, presumably, it was hoped to ensure peace on the passes of the Monte Moro and the Antrona. While the Valaisans in their Italian setting have preserved their hardier German language(and certain old habits which must account for the fact that they call the Anza the Visp), the Italians at Saas have lost their original tongue. They have, however, preserved a remarkable and typically Italian tradition in that they are excellent stone masons. Probably nowhere else in Switzerland do the inhabitants each build their own houses of stone. Rimella (where they call their stream the " Landwasser "), is probably an offshoot of the Macugnaga colony. On the other hand, the German-speaking colonies at Gressoney, Issime, Alagna, and Rima, are said to have had a different origin, having come over the Theodul pass at the beginning of the thirteenth century, at the instance of the Bishop of Sion.

The presence of the German-speaking islands on the south side of the Pennine Alps is interesting not only because of the persistence of the language, but because each isolated village has developed a dialect of its own. In Tschudi's time, Urnaesch

(now Ornavasso, below Domodossola) was German-speaking, but it has since become Italianised. Schott, who devoted much study to this subject in the middle of last century, collected specimens of the language spoken in the following places: Macugnaga (Val Anzasca), Rimella (Val di Mastalone), Rima (Val Sermenta), Alagna (Val Sesia), Gressoney and Issime (Val de Lys). These villages are none of them very distant from one another, but they are somewhat isolated. The following are the various examples of the versions of the parable of the Prodigal Son, also quoted by King.

Macugnaga. E · man hed g'han zwei chind. Ds-jungsta hed g'seid sim fatter : mi fatter, gemmer was mir chunnd fom ewer sach : der fatter deld im sis güed. Eis par tage derna der jungsto dere zweie chinde hed alls z'semme g'macht was er g'ha hed, unn is g'ganged fil wit, wa-j-er hed fertan si sach und ferlumpud.

Rimella. E ma hed zuei chend. Ds-jungsta hed gseid sim vatter : mi vatter, gemmer uas-mer chonnd vam giod ; der vatter delld im sis giod. Es par tage dernan ds-jungste diser zueio chennd hed alls z'semmon'machd ua-er hed g'hebed, und is g'ganged vil uit, ua-er hed vertad si zig.

Rima. Do is g'sin ain man, das do had g'habed zwen son. Unn der jungsto had g'said dem atten : atto, geb mier der tail mis guads, das mier gherd, unn der atto hed g'taild sin war. Und nid van veljun tagun der jungsto son, alls zueg'samlods es g'ganged in wite lander und da had er alls des sinan g'gessed in liederlichs leban.

Alagna. Ain man hed g'habe zwen sin. Und der mindru hed g'said sinem atte : atto, gimmer de

tailj der mier chind, und er hed g'machud die tailjini sinder erbschaft. Und fan do e-ljizil tage, alls z'semmend g'laid, der minder sun ist g'gange in fremdi lender und da hed-er alls g'gasse in di lustparkaite.

Gressoney. E ma hegg'hebed zwei buebe. Drjungsto hed dism atto g'seid : atto, gemmer fan ouwem gued was-mer g'herd, unn der atto hemmo g'gäd was-mo g'herd. Etliche tage dernae der jungero fan disi chinne heggecht alls was erg'hebe hed, unn is wit g'ganged, unn er hed alls usferlumpod.

Issime. E ma hegg'hebbe zuei chinn. S'jungste jud dsim atte : min atto, gemmer uas-mer chinnd ous guds, unn der atto hemmo teild dsis gud. Etlige tag derna s'jungste der zuei chinno lest z'semme alls uas der hegg'hebbe, unn is g'gangan eweg uol uit, ua-ds hed g'gesse all sis gud mid de suache fümmele.

Continuing with de Saussure's itinerary, he crossed the Col de Val Dobbia to Gressoney, in the Val de Lys. From there he made an excursion up the Rothorn, and from this point of observation he thought he had an explanation of the problem of the " inaccessible valley," which some hunters were supposed to have seen. It was in order to investigate this matter that in 1778 a party of seven men led by Jean Joseph Beck and including Nicolas Vincent and Jean Joseph Zumstein made an expedition. The party was chiefly composed of men of Gressoney, and the greatest precautions were taken to ensure secrecy, for it was known that the men of Alagna were proposing to do the same thing, and

PLATE XL.—View of de Saussure's camp on the Col du Gèant.

[*To face page* 188.

they wanted to get in before them. After a number of secret meetings, at which they visited one another one by one to allay possible suspicions, the Gressoney party started out, and reached a point whence they were able to gaze down upon a valley, but they could not make sure that it was an unknown one, for none of them was familiar with the Valais. Two years later the exploit was repeated, and it would seem, judging from de Saussure's conversation with two members of the party, that some of them suspected that the so-called inaccessible or lost valley was not uninhabited. De Saussure thought it might be the Alpe di Petriola which he had visited near Macugnaga. Coolidge, on the other hand, inclines to the view that the hunters in question must have reached the Lysjoch, and that the " inaccessible valley " was that of Zermatt.

After crossing the Betta furka, de Saussure arrived at St. Jacques d'Ayas, and then ascended the Col des Cimes Blanches, with the intention of getting to Zermatt. However, fog prevented them from crossing the Theodul pass, and they dropped down to Breuil. Two days later they were able to cross over to Zermatt, and it is easy to see that it was before the days of Monsieur Seiler, for de Saussure says : " we had extreme difficulty in finding a house willing to take us in. The innkeepers were either away or ill-willed, and the priest, who sometimes puts up travellers, replied that he did not wish to sell us anything ! " In spite of this

cool reception, they succeeded in forcing an innkeeper to take them, and then descended the valley to Visp en route for Geneva.

De Saussure had been so much impressed with the Matterhorn that he determined to devote another journey to the Theodul pass, which formed his seventh and last, in 1792. He and his son left Geneva on August 4th, and took the road to Sallanches, on the way to the Col du Bonhomme and the little St. Bernard pass. On the latter, a priest of the Order of St. Maurice and St. Lazarus was charged to give two glasses of wine and half a pound of bread to every poor traveller, and made difficulties in accepting offerings from the well-to-do. Descending to Aosta, de Saussure turned up the Val Tournanche and reached Breuil. On the Theodul pass, a camp was pitched, and they devoted themselves to measuring the height of the Matterhorn. For this purpose they used a chain made on the pattern of Sir George Shuckburgh's, and a Stancliffe sextant. Although they were on the frozen snow, they became so heated by this exercise, that de Saussure had to retire into his tent and change his shirt.

After making ascents of the Little Matterhorn and the Theodulhorn, de Saussure returned to Breuil (it is to be noted that he gave Zermatt a wide berth), and eventually returned home by the Great St. Bernard. It will not be inappropriate to end this account of his journeys with a quotation of his

words when contemplating the Matterhorn, and which seem to express his frame of mind on all his travels :

> Placed on this planet since yesterday, and only for one day, we can but desire knowledge to which, seemingly, we shall never attain.

However, he was too modest, for, as his great successor, Forbes, said, " there is scarcely one of the more modern writers (on the Alps, should perhaps be added) with whom I am acquainted, whose writings can be compared with those of " de Saussure.

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